

Holophane Datalog

COMMERCIAL
EDITION



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Dated



HOLOPHANE GLASS CO., Inc.

342 Madison Avenue, New York, N. Y.

HOLOPHANE REFLECTORS AND FITTINGS

EFFECTIVE DECEMBER 1st, 1925

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HOLOPHANE DATALOG

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BOOKLET No. 375-C

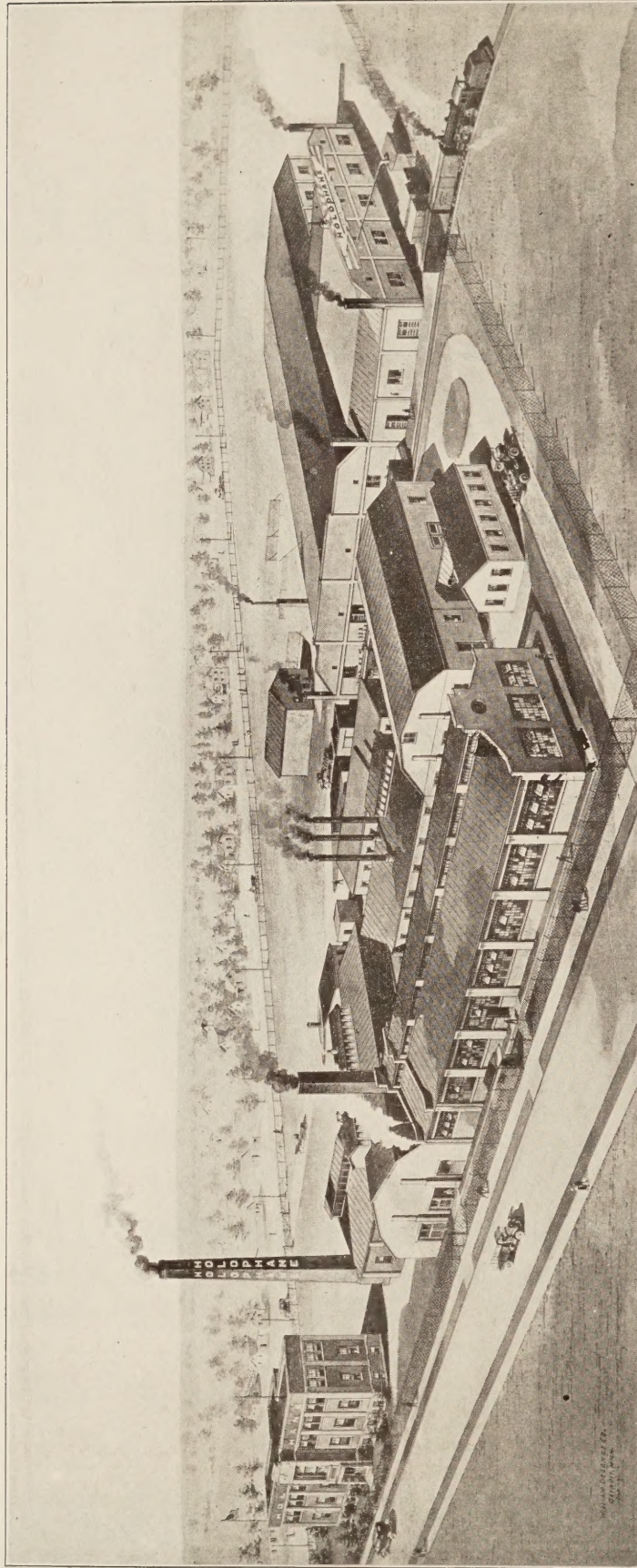
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HOLOPHANE GLASS COMPANY, INC.
342 MADISON AVENUE . NEW YORK
WORKS :: :: NEWARK :: :: OHIO

IN CANADA

HOLOPHANE Co., LTD., 146 KING STREET, W., TORONTO



The Holophane Glass Co. Inc., Works at Newark, Ohio

THE Holophane Company was the pioneer company in the field of scientific illumination and has been well-known in that field for more than a quarter of a century.

The original rights to manufacture and sell the Holophane product were acquired in 1893 in Paris, by an American, Mr. Otis A. Mygatt, who organized, apart from the American, several European companies, the successors to which are today, Holophane Limited, London, and Holophane, Paris.

Shortly afterwards (1898) the Holophane Glass Company was organized and started business in the United States, at No. 1 Broadway, New York City. At that time, they manufactured reflectors and globes for use with the then prevailing carbon lamp, gas burners, acetylene and oil lamps.

With the introduction of the tungsten filament lamp, the Holophane Company grew by leaps and bounds. The new type of lamp, although being more efficient in candle-power output than its predecessor, the carbon lamp, had a different type of light distribution, delivering most of its flux in horizontal directions and very little downward where it could be utilized. This made it more necessary than ever before, that the user of these new lamps choose scientifically designed and efficient reflecting equipment as available with Holophane reflectors.

The large lamp interests, realizing the importance of equipping their lamps with efficient reflectors, obtained from Mr. Mygatt, full sales rights to the entire Holophane product in the United States and for several years, operating under the name of the Holophane Works of G. E. Co., they marketed the product.

The arrangement was continued until January 1, 1916, on which date, by mutual agreement the General Electric Co. relinquished all their selling rights and interests. The Holophane Glass Company, Inc., began again to handle the sales of their product in this country.

Due to the increase in the business, under the new arrangement, it was necessary in 1917 to erect the new factory shown on the opposite page of this book. This plant has a daily capacity of more than 8,000 pieces of Holophane prismatic glass.

Throughout all of these years, the Holophane Company has never lost sight of the original company policy which is to produce only scientifically correct and efficient products.

It is interesting to note that the scientific developments in all new lines during the past twenty years, have been under the supervision of the same chief engineer and that the manufacturing of the intricate molds required for successful operation has remained in the hands of the same superintendent for a like period.

It gives the Holophane Company great pleasure to present to their customers this short outline of their business experience with the issuing of this new publication called—

THE HOLOPHANE DATALOG

Commercial Edition

THE data presented in this publication have been compiled by the Holophane Engineering Department from investigations, study and practice in the *illumination field*. On request, the authority for any statement or illumination value as shown, will be furnished by the Holophane Engineering Department. For this reason, the accuracy of these data may be absolutely relied upon for all practical illumination design work as applied to Holophane reflectors.

Holophane Engineering Service:

The Holophane Company believes that the maximum service from any lighting installation, requires careful engineering design and planning in advance of the installation of equipment. To this end, the Company maintains a competent Engineering Department which will draw up complete illumination specifications on any lighting project without charge or obligation. The public is urged to take advantage of this engineering service to insure the selection and application of proper lighting equipment.

Specifics:

After a most exhaustive study of lighting requirements in all its phases, the Holophane Company has designed certain types of lighting equipment which are specifics for special classes of application.

By designing lighting equipment to fit a predetermined set of conditions, it is possible to realize maximum utilization efficiency. This method of treating lighting problems is to be contrasted with the popular misconception that a so-called standard unit can be made that will fit all lighting conditions.

All Holophane lighting units have the following characteristics:

- (1) The greatest possible utilization efficiency.
- (2) A light distribution especially adapted to each application.
- (3) Sufficient light transmitted to the ceiling to give natural daylight appearance.
- (4) No permanent depreciation of reflecting surface.
- (5) Lowest temporary depreciation (due to dust and dirt) of any lighting reflector.

The Holophane Engineering Department will gladly furnish complete engineering specifications for any lighting installation, believing that this is the only way in which maximum economy and satisfaction can be obtained. This service is freely given in full faith and in unalloyed devotion to the philosophy—

“He Profits Most Who Serves Best”

Intensity of Illumination:

Daylight intensities outdoors are vastly higher than those employed in artificial lighting indoors. For example: Daylight foot candle intensities of 2000 are common outdoor values, whereas 20 foot candles artificial lighting indoors is exceptionally high.

High intensity illumination quickens and facilitates vision, assists in discrimination of fine detail and objects of low contrast either in brightness or color. High intensity is of advantage in all operations which are dependent upon vision.

High intensity illumination is required to reveal detail of dark objects, more so than of light ones. Higher intensity of illumination is required for fine discrimination than for coarse discrimination. Higher intensity illumination facilitates color discrimination. Color discrimination disappears at very low intensities.

ILLUMINATING ENGINEERING DATA

Throughout and even above the range of ordinary artificial lighting levels (2 to 10 foot candles) increased intensity induces increased visual acuity. Intensities suitable for satisfactory and efficient vision generally are higher than those minima with which objects can be readily distinguished and which are prescribed for safety in the state codes.

Extremely high intensities, beyond those to which the eye can adapt itself, such as are encountered in arc-welding, over-stimulate the eye's retina and exert an injurious effect.

Table I shows the desirable illumination that should be provided for various locations, and represents modern lighting practice but each installation should be made a special study. The Holophane Engineering Department will be glad to advise on special problems.

TABLE I

Work	Foot Candles Intensity	Work	Foot Candles Intensity	Work	Foot Candles Intensity
Aisles	3	Hotel:		Class, Study, Recitation Rooms,	
Armory	6	Bedroom	5	Libraries, Laboratories, Man-	
Assembling:		Corridor	3	ual Training, Domestic Sci-	
Rough	6	Dining Room (General)	6	ence (except sewing)	8
Medium	9	Dining Room (with Table		Sewing, Drawing, Drafting	12
Fine	12	Lights)	3	Stairways	4
Extra Fine	30	Lobby	4	Station:	
Auditorium	6	Industrial Yard Thoroughfares	1/2	Waiting Room	4
Automobile Show Room	8	Inspecting:		Storage and Stock Rooms:	
Bakeries:		Rough Inspecting	6	Rough Stock	4
Mixing and Baking	9	Medium Inspecting	9	Medium Stock	6
Bank (General)	4	Fine Inspecting	12	Fine Stock	9
Bank (Desk)	10	Extra Fine Inspecting	30	Stores:	
Barber Shop	8	Jewelry and Watch Mfg.:		Apparel	12
Billiard Room (General)	2	Bench Work	30	Art	12
Billiard Table	10	Laundries, Dry Cleaning:		Baker	8
Boiler, Engine Rooms, etc.:		Washing	6	Book	8
Boiler Rooms, Coal and Ash		Sorting, etc.	10	Butcher	8
Handling	6	Library:		Carpet	10
Switch Boards, Engines	9	Stock Room	4	Rug Rack	20
Café (General only)	6	Reading Room	6	Cigar	12
Café with Table Lights	3	Reading Room (with Local)	4	Clothing	12
Card Room (Tables)	6	Machine Shops:		Confectionery	8
Church	3	Rough Bench and Machine		Decorator	12
Construction:		Work	6	Drugs	8
Outdoor	1	Medium Bench and Machine		Dry Goods	10
Indoor	3	Work, etc.	9	Florist	8
Desk	10	Fine Bench and Machine		Furniture	4
Drafting	15	Work, etc.	12	Furrier	12
Elevators, Freight and Passengers		Extra Fine Bench and Machine		Grocery	8
Engraving	30	Work, etc.	30	Haberdashery	12
Forge Shops and Welding:		Offices	8	Hardware	8
Rough Forging	6	Printing Industries:		Hat	12
Fine Forging	9	Matrixing, Casting, etc.	9	Hosiery and Knit Goods	12
Foundries:		Proof-reading, etc.	12	Jewelry	12
Charging Floor	6	Linotype, Monotype, etc.	15	Leather	10
Rough Molding	8	Receiving and Shipping	6	Millinery	12
Fine Molding	10	Schools:		Music	8
Garage	4	Storage spaces	2	Notions, Dark	12
Gymnasium	8	Stairways, Corridors, En-		Piano	8
Halls, Passageways in Interiors	3	trances, Porticos, etc.	4	Shoes	12
Hospital:		Boiler Rooms and Similar		*Show Window	50
Ward Room, Dim	0.1	Spaces	4	Stationery	8
Ward Room, Bright	3	Gymnasiums, Auditoriums, As-		Telegraph:	
Operating Room	50	sembly Rooms, Museums,		Operating	12
Corridor	3	Art Galleries	4	Telephone:	
				Manual Exchanges	4
				Automatic Exchanges	12
				*Window (Show)	50

*Modern window lighting calls for approximately 50-foot candles for a moderately bright window and 100-foot candles or more for brilliant windows.

Direction of Light:

For utilitarian purposes, it is usually preferable to provide a *dominant downward component* of light upon the object to be viewed (preferably somewhat from one side). Unidirectional light unrelieved by other general light is rarely desirable.

Shadows:

Shadows which obscure the object impede operations and often create hazards. Unnatural or improper direction of light produces shadows which are likely to be misleading. Multiple shadows of similar degree are unnatural and confusing, especially if the shadows are well defined. Shadows which outline the object viewed aid in clear perception of form and establish perspective.

Color:

In general, various media reflect, absorb or transmit light selectively. For instance, white glass or slightly tarnished silver absorbs more blue than red rays, and the result is a light of a slightly yellow color.

A color appears more saturated as its brightness is decreased and vice versa. In general, the appearance of a color is modified by its color environment. Hues of the longer wave length such as red and yellow, are usually stimulating; while those of the shorter wave lengths, such as green and blue, are usually depressing.

For most utilitarian visual purposes, daylight quality is usually preferred. Colored lighting has effective application in colored display window lighting. In this use, color association is of great importance.

Glare:

Glare diminishes the ability to see objects and causes ocular discomfort and fatigue. Under some conditions, particularly in street and *industrial lighting*, glare constitutes a hazard.

Glare is caused by extreme contrasts between a local area and the average brightness of the surrounding field, or less commonly, by an extreme brightness of the whole field of view or an image of the source reflected more or less spectrally from a polished surface. The effect is more pronounced when the source of glare is near the center of the visual field (i. e. between the angle of 60° to 90° from the vertical.)

For a fixed position of light source with reference to the eye, glare depends upon the following:

- Contrast with background.
- Brightness of the source.
- Total flux in the 60° to 90° zone.

The total flux of light in the 60° to 90° zone is a more important factor among these items than it is generally thought to be.

The following chart shows graphically what part of the illumination from any given luminaire reaches useful points either directly from the luminaire or indirectly from the ceiling.

Light delivered in the angle 60° to 90° (from axis of luminaire) is not only wasted light, but is harmful to clear vision, because it enters the eye in this critical angle, causing glare.

1. The 0° – 60° zone represents useful light that is received directly on the work.
2. The 60° – 90° zone represents light that is directed into the eye and causes glare.
3. The 90° – 180° zone represents useful light that is directed to the ceiling to be re-directed to the work.

It follows that the ideal reflector would have maximum light in the 0 – 60° and the 90° – 180° zones, and minimum light in the 60° – 90° zone.

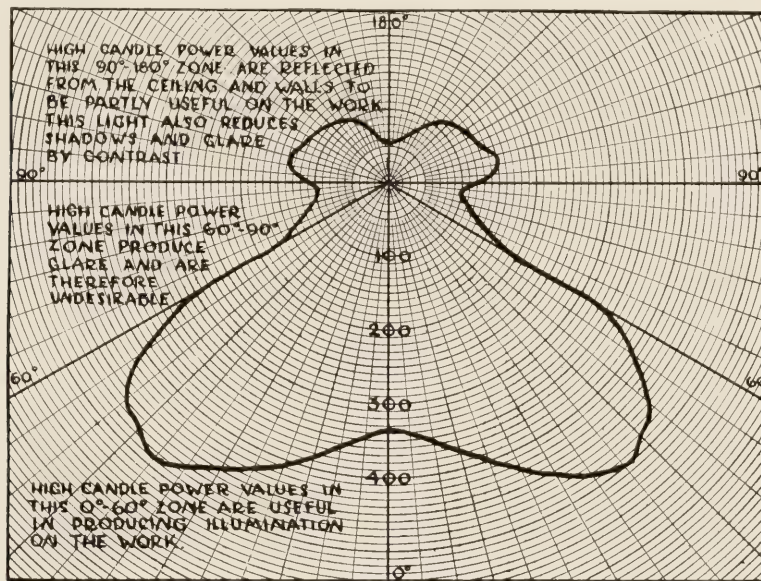


Chart showing what portions of a distribution curve of a reflector are useful in delivering light directly to the work, indirectly to the work, and the portion of the curve that produces glare.

Glare effects are influenced quantitatively by the immediately preceding exposure of the eye to light, being more pronounced if the eye is adapted to relative darkness. Glare is decreased as the source is removed from the center of the field of view, or as it recedes from the eye. Glare is also lessened by increasing the brightness of the background. Glaring installations are often wrongly criticized as being illuminated at too high an intensity, whereas the intensity is often not high enough.

General Appearance of the Lighted Room:

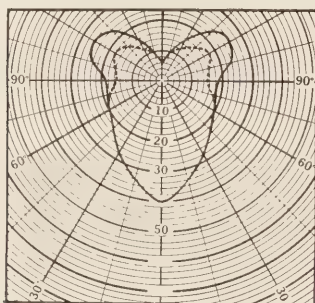
The importance of the general appearance of the lighted room cannot be over-estimated. Frequently spaces are well illuminated as regards intensity of illumination, glare and uniformity, but have a gloomy appearance and depressing effect on the occupants. In school, office and industrial work, this is particularly important because of the effect on the mental process due to this psychological factor.

Depreciation Factor and Maintenance:

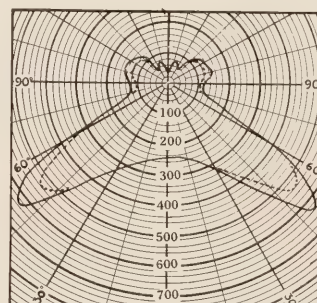
The efficiency of any lighting system gradually falls off due to the ageing of the lamps, dust accumulations on the lamp and reflector, and depreciation of the reflecting value of the ceiling and walls. It is important to keep the accumulated effect of this reduction in efficiency as low as possible and it is good practice to apply a depreciation factor to all illumination calculations so that the desired illumination values will be obtained after depreciation. If a good magnesia base paint is used on the ceiling and walls and the lamps and reflectors are cleaned once every two months, a depreciation of 20 per cent. (multiplying factor 1.25 should be used with all Holophane reflectors.

It should be noted that there is no permanent depreciation of Holophane reflectors as the initial efficiency is restored by cleaning.

Careful attention has been given to the question of light loss caused by dirt and dust accumulation on Holophane reflectors. They are designed so as to reduce this loss to a minimum. Tests made in the Holophane laboratories and confirmed by similar tests at the Electrical Testing Laboratories, show that the loss of light for Holophane reflectors due to dust and dirt accumulations is confined to the transmitted light passing through the reflector to the ceiling, whereas the downward light is only slightly affected.



The above curve shows the effect of the dust accumulations of four months on a Holophane reflector having refracting and diffusing prisms. The full line shows the cleaned reflector and the dotted line shows the dusty reflector.



















The above curve shows the effect of dust accumulations of eight months on Holophane reflector having prisms of the reflecting type. The full line shows the cleaned reflector and the dotted line shows the dusty reflector.

Recent data on the effect of dust and dirt on reflector equipment, reported by Anderson and Ketch of the National Lamp Works of the General Electric Company, before the Illuminating Engineering Society, gives accurate information on the depreciation of modern lighting equipment due to dust and dirt and their data is reproduced in part, in the following tabulation.

It will be noted from this tabulation that Holophane reflector equipment of both the direct and indirect types (Items 2 and 16), compares most favorably with other reflector types.

ILLUMINATING ENGINEERING DATA

ACTUAL DEPRECIATION OF LIGHTING EQUIPMENT AS AFFECTED BY EQUIPMENT DESIGN*

Luminaire	Description	Actual Depreciation 120 Days Dry Fine Dust	Luminaire	Description	Actual Depreciation 120 Days Dry Fine Dust
1 	Dense opal glass—clear lamp	11.2	9 	Frosted ball—top and bottom open	15.0
2 	Prismatic glass—clear lamp	12.4	10 	Semi-enclosing opal bowl with diffusing plate	27.2
3 	Deep enameled steel bowl—clear lamp	11.5	11 	Dense opal bowl	22.5
4 	RLM Dome—clear lamp	12.8	12 	Enameled metal reflector with opal glass bottom	26.0
5 	RLM Dome—bowl-enameled lamp	16.3	13 	Mirrored Glass bowl	26.2
6 	Diffusing globe and enameled steel reflector	22.9	14 	Clear top with bottom opening	35.6
7 	Diffusing globe—no vent	13.4	15 	Clear top without bottom opening	15.0
8 	Diffusing globe—bottom vent	22.7	16 	Prismatic , without bottom opening	10.1

Coefficient of Utilization:

The coefficient of utilization is the proportion of the total light flux emitted by the lamps effective on the work. The coefficient of utilization is the true measure of the effectiveness of a luminaire and should not be confused with such terms as “overall efficiency” which are misleading. Thus it is quite possible for a lighting unit having an overall efficiency of 80% to have a coefficient of utilization of 70%, while another unit installed in the same room having as high an overall efficiency as 90% may have a coefficient of utilization of only 55%.

The coefficient of utilization involves many factors, such as the room length, room width, the ceiling height, the reflection factor of the ceiling and walls and to a very great degree, the type of the lighting unit. It has been found that large rooms can be lighted more efficiently than small ones and that as the mounting height is increased, the efficiency of the system is reduced. The charts on pages 10 and 11 shows a series of values called the “Room Index,” for various room dimensions and mounting heights of the luminaire. These charts are used in conjunction with Table III to determine the coefficient of utilization of Holophane reflectors for various conditions of use.

*Transaction of Illuminating Engineering Society, Anderson and Ketch, Vol. XIX No. 1, 1924.

TABLE II

Luminous Flux Emitted by Mazda Lamps.
(Standard Lighting Service 110-125 Volts)

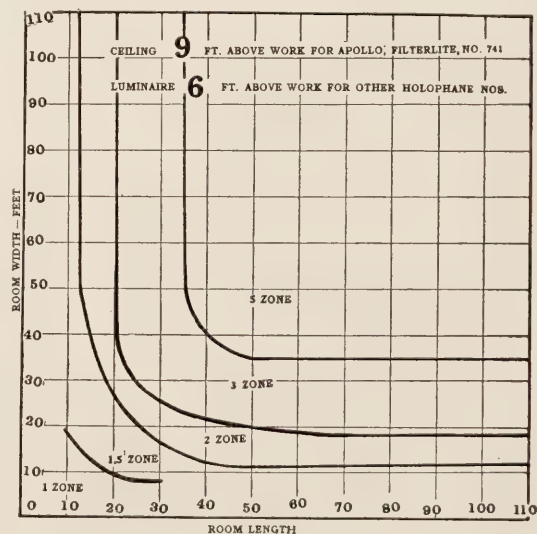
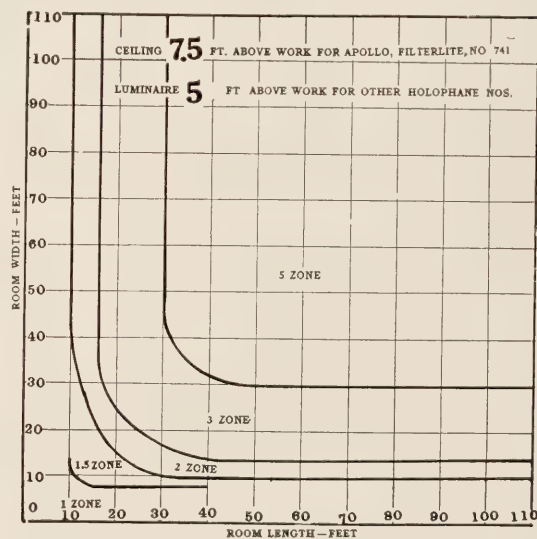
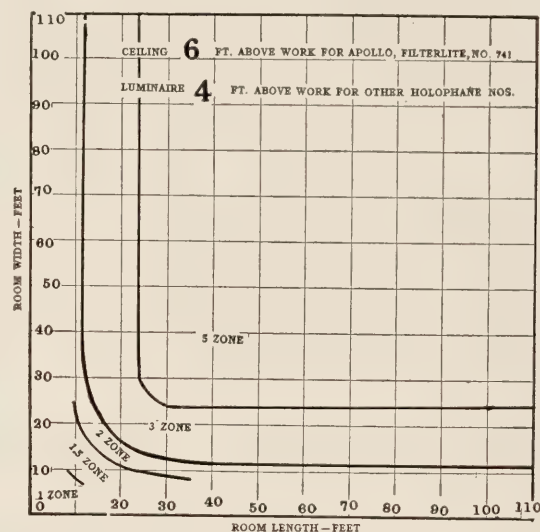
Size of Lamp in Watts	Lumens	*Light Center Length
15	135	
25	240	
40	410	
50	520	
60	620	
75	920	$4\frac{5}{16}$
100	1350	$5\frac{1}{8}$
†100	1320	$4\frac{3}{8}$
150	2200	$5\frac{3}{8}$
200	3200	6
300	5000	7
400	7000	7
500	9400	7
750	14500	$9\frac{1}{2}$
1000	20000	$9\frac{1}{2}$
1500	33000	$9\frac{1}{2}$

*Light center length is distance in inches from contact point of lamp to center of filament.

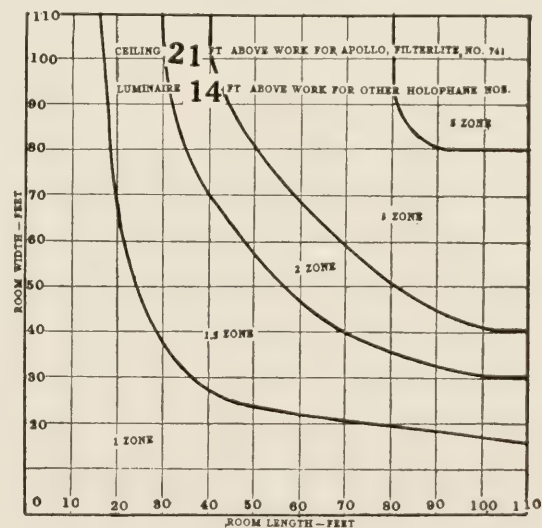
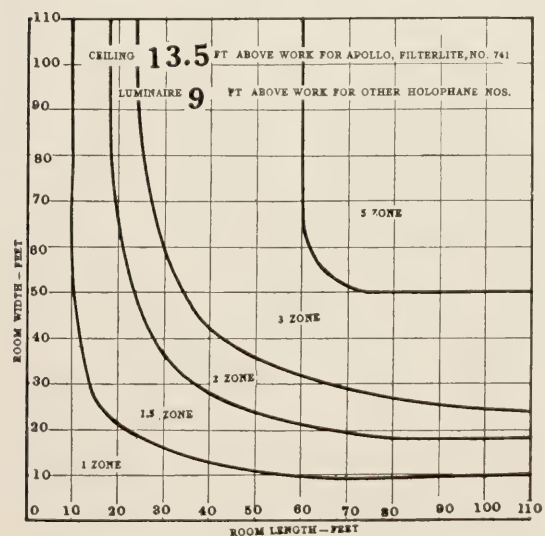
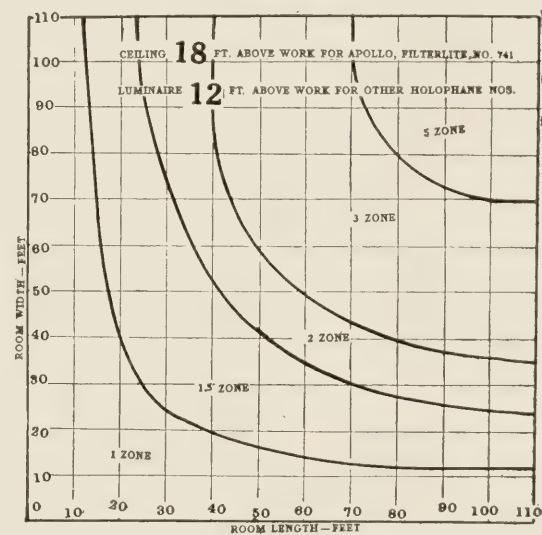
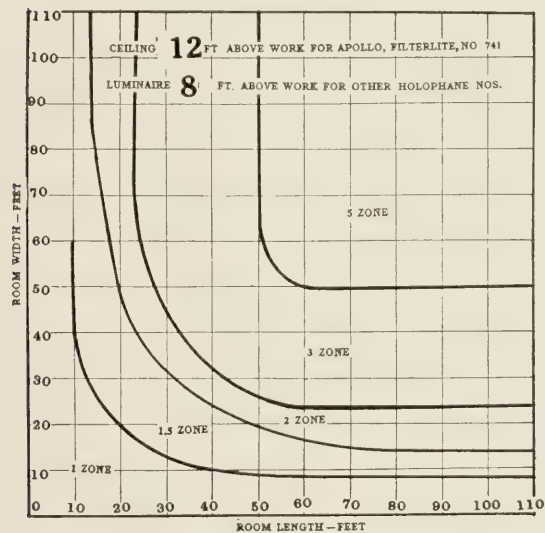
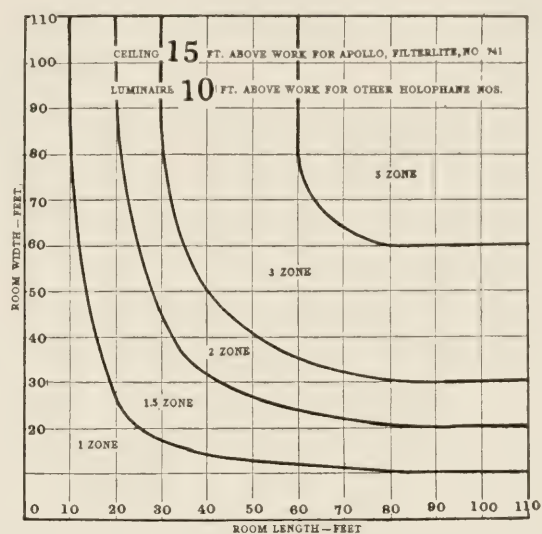
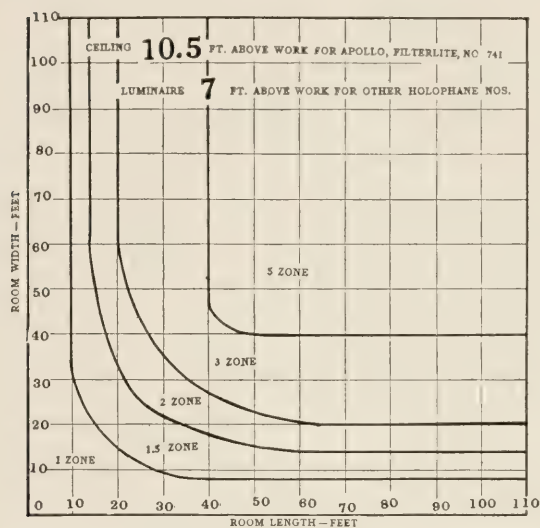
†The new all frosted inside lamp.

ROOM INDEX

The following charts show the room *indices* for various sized rooms and ceiling heights met with in ordinary lighting practice. It should be especially noted that in the case of the Apollo, Filterlite and No. 741 luminaires, the charts refer to distances between ceiling and work, while in the case of other Holophane luminaires, the mounting height of the luminaires above the work are shown in the chart. In cases where the room index falls on one of the curved lines, the lower value of room index should be used. For rooms larger than those shown on the chart, a room index of 5 should be used, and for rooms smaller than those shown on the chart, a room index of 1 should be used. All room indices of "one" lie in the "1 zone"; "two" in the "2 zone," etc.



ILLUMINATING ENGINEERING DATA



ILLUMINATING ENGINEERING DATA











Coefficients of Utilization: (See Page 9):

The coefficients of utilization shown below are applicable to Holophane Reflectors for the ordinary room dimensions shown in the charts on Pages 10 and 11. For reflection factors not shown, the coefficient of utilization should be estimated from the nearest value given.

Coefficient of Utilization*

TABLE III

Find Room Index from Charts on Pages 10 and 11.

	Reflection Factor Percent. See Page 14	Ceiling	50				60				70				80			
			Walls															
			20	30	40	50	20	30	40	50	20	30	40	50	20	30	40	50
	Reflector Type	Room Index	Coefficients of Utilization															
Hol. No. XE	 Clear Lamp. 90° to 180°-22.1%  0° to 90°-60.0%	1	.30	.32	.34	.36	.31	.33	.35	.37	.31	.33	.35	.38	.32	.34	.36	.39
		1.5	.36	.38	.41	.42	.37	.39	.41	.43	.38	.40	.42	.45	.39	.41	.43	.46
		2	.42	.43	.46	.46	.42	.44	.46	.48	.43	.45	.47	.50	.44	.46	.49	.51
		3	.47	.48	.52	.52	.48	.50	.52	.54	.50	.52	.54	.56	.50	.53	.55	.58
		5	.53	.54	.57	.58	.54	.56	.58	.60	.56	.58	.60	.62	.58	.60	.62	.64
Hol. No. XI	 Clear Lamp. 90° to 180°-20%  0° to 90°-63.7%	1	.33	.35	.37	.40	.34	.36	.38	.40	.34	.36	.38	.41	.35	.37	.40	.43
		1.5	.40	.42	.44	.46	.41	.43	.45	.47	.42	.43	.46	.49	.43	.45	.47	.50
		2	.45	.47	.49	.51	.46	.48	.50	.52	.47	.50	.52	.54	.49	.51	.53	.56
		3	.51	.53	.56	.57	.52	.55	.57	.59	.54	.56	.59	.61	.55	.58	.60	.63
		5	.57	.59	.61	.62	.59	.61	.63	.65	.61	.63	.65	.67	.63	.65	.67	.69
Hol. No. XF	 Clear Lamp. 90° to 180°-18%  0° to 90°-64%	1	.38	.39	.41	.43	.38	.40	.42	.44	.39	.40	.42	.45	.39	.42	.44	.45
		1.5	.44	.46	.48	.50	.45	.47	.48	.51	.46	.48	.50	.53	.47	.49	.51	.54
		2	.49	.51	.52	.55	.50	.53	.54	.56	.51	.53	.55	.58	.53	.55	.57	.58
		3	.55	.56	.59	.60	.57	.58	.61	.62	.58	.59	.62	.64	.59	.62	.64	.66
		5	.61	.62	.64	.66	.63	.64	.66	.68	.64	.66	.69	.70	.66	.68	.70	.72
Hol. No. CSE	 Clear Lamp. 90° to 180°-19%  0° to 90°-66%	1	.35	.37	.39	.40	.35	.37	.39	.41	.36	.37	.40	.42	.36	.38	.40	.46
		1.5	.41	.43	.45	.47	.42	.44	.46	.48	.42	.45	.47	.50	.44	.46	.48	.52
		2	.46	.48	.50	.51	.47	.49	.51	.53	.48	.50	.52	.55	.49	.51	.54	.57
		3	.52	.54	.56	.57	.53	.55	.57	.59	.55	.58	.59	.61	.56	.58	.61	.64
		5	.58	.59	.61	.63	.59	.61	.63	.65	.61	.63	.66	.67	.63	.64	.65	.70
Hol. No. CSI	 Clear Lamp. 90° to 180°-18%  0° to 90°-68%	1	.37	.39	.41	.42	.38	.39	.41	.44	.38	.40	.42	.44	.39	.42	.43	.45
		1.5	.44	.46	.47	.47	.45	.47	.48	.50	.46	.47	.49	.52	.47	.49	.50	.53
		2	.49	.50	.52	.54	.49	.51	.54	.55	.52	.53	.55	.57	.53	.54	.56	.58
		3	.55	.56	.58	.60	.56	.58	.60	.62	.57	.59	.62	.63	.58	.61	.63	.65
		5	.60	.62	.64	.65	.62	.64	.65	.67	.64	.65	.68	.69	.65	.67	.69	.71













*Calculated from data by Harrison and Anderson.

ILLUMINATING ENGINEERING DATA

Coefficient of Utilization*

TABLE III—Continued

Find Room Index from Charts on Pages 10 and 11.

	Reflection Factor Percent. See Page 14	Ceil- ing	50				60				70				80			
		Walls	20	30	40	50	20	30	40	50	20	30	40	50	20	30	40	50
	Reflector Type	Room Index	Coefficients of Utilization															
Hol. Nos. 2110-2120 2130-2140-2170-2180	 Clear Lamp. 90° to 180°-23.6%  0° to 90°-60.5%	1	.33	.36	.38	.39	.35	.36	.38	.40	.35	.37	.39	.41	.36	.38	.40	.42
		1.5	.39	.42	.43	.45	.41	.43	.45	.47	.42	.43	.46	.48	.43	.45	.47	.50
		2	.45	.46	.48	.50	.46	.48	.50	.51	.46	.49	.51	.53	.49	.51	.53	.55
		3	.50	.52	.54	.55	.52	.54	.56	.57	.54	.56	.58	.60	.55	.57	.59	.62
		5	.56	.58	.59	.62	.58	.60	.62	.63	.60	.61	.64	.65	.62	.63	.65	.68
Hol. Filterlite	 Clear Lamp. 90° to 180°-57%  0° to 90°-26%	1	.17	.19	.20	.22	.19	.20	.22	.24	.20	.22	.24	.28	.22	.25	.27	.30
		1.5	.22	.20	.25	.28	.24	.26	.28	.30	.28	.29	.31	.33	.30	.32	.34	.37
		2	.26	.27	.28	.31	.28	.30	.32	.34	.31	.33	.35	.37	.34	.36	.39	.42
		3	.31	.32	.34	.36	.34	.36	.38	.40	.37	.39	.41	.44	.41	.43	.46	.48
		5	.37	.38	.40	.42	.40	.42	.44	.48	.45	.46	.48	.51	.49	.51	.53	.55
Hol. Nos. 2208-2328	 Clear Lamp. 90° to 180°-23%  0° to 90°-58%	1	.33	.34	.36	.38	.33	.35	.37	.39	.34	.35	.37	.40	.35	.37	.39	.41
		1.5	.39	.40	.42	.44	.39	.41	.43	.45	.41	.42	.44	.47	.42	.44	.45	.48
		2	.43	.44	.46	.48	.44	.46	.48	.49	.45	.47	.49	.51	.47	.48	.51	.53
		3	.49	.50	.52	.53	.50	.52	.54	.55	.52	.53	.55	.57	.53	.55	.57	.59
		5	.54	.55	.57	.58	.56	.57	.59	.61	.58	.59	.61	.63	.59	.61	.63	.65
Hol. Nos. 621-651	 Clear Lamp. 90° to 180°-24.3%  0° to 90°-70.1%	1	.41	.43	.45	.47	.42	.44	.46	.48	.42	.44	.46	.49	.44	.46	.48	.50
		1.5	.48	.51	.52	.54	.49	.51	.53	.55	.50	.53	.54	.57	.52	.54	.56	.60
		2	.54	.55	.57	.59	.54	.57	.59	.60	.56	.58	.60	.62	.58	.60	.61	.64
		3	.59	.62	.63	.65	.61	.63	.65	.67	.63	.66	.67	.70	.64	.67	.69	.72
		5	.66	.68	.69	.71	.68	.69	.71	.73	.70	.72	.74	.75	.72	.73	.76	.78
Hol. Nos. 622-652	 Clear Lamp. 90° to 180°-18%  0° to 90°-73%	1	.42	.43	.46	.47	.42	.44	.46	.48	.43	.44	.46	.49	.44	.46	.48	.50
		1.5	.49	.50	.52	.54	.49	.52	.53	.55	.50	.53	.54	.57	.51	.54	.55	.58
		2	.54	.56	.57	.59	.55	.57	.59	.61	.56	.58	.60	.62	.57	.59	.62	.64
		3	.60	.62	.64	.66	.61	.64	.65	.67	.63	.65	.67	.69	.64	.66	.68	.71
		5	.66	.67	.69	.71	.68	.69	.71	.73	.69	.71	.73	.75	.71	.72	.75	.77
Hol. No. 661	 Clear Lamp. 90° to 180°-28%  0° to 90°-63%	1	.36	.39	.40	.43	.37	.39	.41	.43	.39	.40	.43	.44	.39	.41	.43	.45
		1.5	.43	.46	.48	.50	.45	.46	.49	.51	.45	.47	.49	.51	.46	.49	.50	.53
		2	.48	.52	.53	.54	.48	.52	.54	.56	.50	.52	.54	.56	.52	.54	.56	.58
		3	.54	.58	.59	.60	.55	.59	.61	.62	.60	.61	.63	.65	.61	.63	.65	.68
		5	.61	.62	.63	.66	.61	.62	.64	.66	.63	.65	.67	.68	.68	.70	.71	.73

*Calculated from data by Harrison and Anderson.

Specifics vs. Standard Reflectors for Industrial Lighting:

After a most exhaustive study of the requirements of industrial lighting in all of the industries, the Holophane Company has for the past five years abandoned the prevalent idea that a so-called standard reflector can be used for all types of service. Holophane reflectors for industrial use are especially designed for specific application and are in no sense standard for all uses. Only by designing industrial lighting equipment to fulfill the requirements of specific application, maximum utilization efficiency can always be realized.*

All Holophane industrial lighting units have the following characteristics:

- (1) The greatest possible *utilization* efficiency. The light is distributed where it can be used by the eye to see by without wasting it.
- (2) A light distribution specially adapted to each application.
- (3) Sufficient light transmitted to the ceiling to give natural daylight appearance.
- (4) No permanent depreciation of reflecting surface.
- (5) *Lowest temporary depreciation (due to dust and dirt) of any industrial lighting reflectors.

Some of these specifics are the C-2172 Asymmetric Unit (Page 30), the No. 651 and No. 661 High Mounting Height Unit (Page 28), the No. 621 Localized General Lighting Unit (Page 28) the Yard Lighting Unit (Page 32) and the Industrial Refractor Unit (Page 33).

Reflection Factors of Walls and Ceiling:

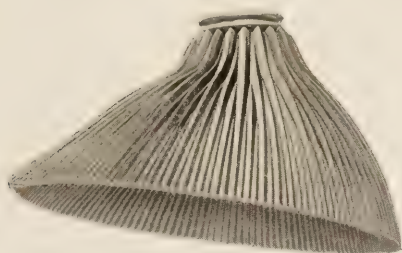
A perfectly white wall or ceiling surface would reflect 100% of the light which falls on it and an absolutely black wall would reflect no light. Between these theoretical limits there is a vast range of reflecting values. The best white paint reflects approximately 85% of the light which falls on it.

In general it may be assumed that white paint, when new, will have a reflection factor of approximately 80%; light tints of yellow such as creams and ivories 70%; and so-called French gray 45%.

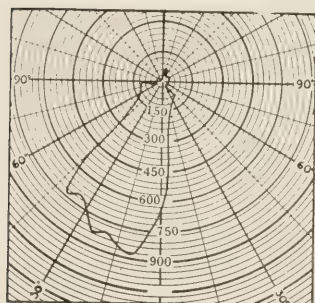
Buildings of the "saw tooth" type have extremely low ceiling reflection values because of the large glass area. In like manner, walls having large glass area have a low reflection value. A modern industrial plant of the Fenestra window type will have an effective wall reflection value of approximately only 20%. A room having windows in one half of the wall surface would have an effective wall reflection factor of approximately one half the reflection value of the wall paint.

*See Pages 8 and 9.

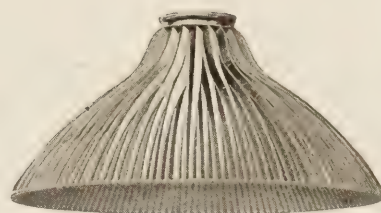
HOLOPHANE REFLECTORS FOR SHOW WINDOW LIGHTING



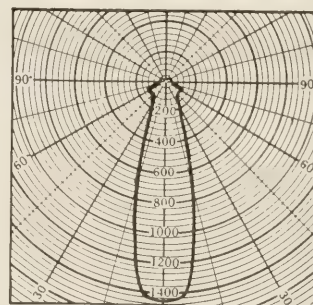
No. 983



Photometric curve of No. 983 with
100 watt Mazda C lamp



No. 963



Photometric curve of No. 963 with
100 watt Mazda C lamp

Description:

These reflectors are designed for maximum efficiency in any show window lighting.

Use:

The No. 983 reflector is recommended for show window locations where angular distribution is required, and the added refinement of the No. 922 anti-glare plate (see Page 16) is unnecessary.

The No. 963 reflector is recommended for high shallow windows and is also appropriate for use recessed in a false ceiling.

Spacing:

Nos. 963 and 983 should be mounted not less than 6" from the window glass on centers not exceeding 18" nor less than 11". Good practice consists of spacing on 12" to 14" centers using 100 or 150 watt Mazda C or C-2 lamps.

SCHEDULE "R"

Holo. No.	List Price Each	Standard Quantity	Approx. Shipping Weight Lbs. Per Std. Pkg.	DIMENSIONS IN INCHES			Correct Lamps Watts
				Diameter	Height	Holder	
963	\$3.00	15	68	10 $\frac{5}{8}$	5 $\frac{1}{4}$	2 $\frac{1}{4}$ -H	100-150
*983	3.00	12	75	10 $\frac{3}{8}$	6 $\frac{1}{2}$	2 $\frac{1}{4}$ -H	100-150

For colored window lighting equipment see page 18.

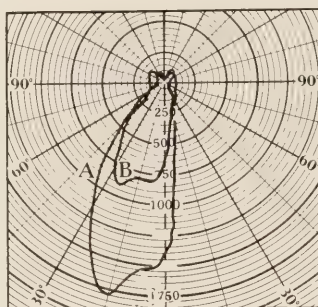
Note:

It is important that the proper holders be used with Holophane reflectors. Use No. 983 and 963 with 100 or 150 watt lamps with Form H holder such as Uno No. 504 on brass socket. On porcelain sockets, use Appleton holder No. 7319 or Bryant No. 444.

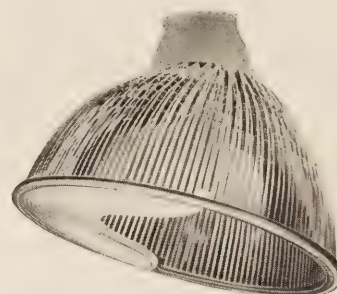
HOLOPHANE REFLECTORS FOR SHOW WINDOW LIGHTING



No. 944
Completely Enclosed Type.



Characteristic curves of the No.
944 (A) and No. 922 (B).



No. 922
Semi-Enclosed Type.

Description:

Holophane Reflector No. 944 is the latest development for scientific Show Window Lighting and the only reflector of its kind which completely envelopes the lamp. This construction is superior to open reflectors because it reduces depreciation from dust and dirt to an absolute minimum, eliminates glare and reflected glare, softens shadows to a degree heretofore not realized and vastly improves the appearance of the show window.

Reflector No. 944 is designed for 200 watt lamps but can be used with 100 or 150 watt in combination with any standard socket extension similar to Benjamin No. 91. The unit is supplied including a brass extension heel to fit any $2\frac{1}{4}$ " flat or Form "O" holder. Due to careful engineering design, it has an efficiency equal to the best open reflectors.

Holophane No. 922 is similar to No. 944, but designed for use with 100 and 150 watt lamps. The anti-glare or diffusing plate on this reflector does not completely envelop the lamp but does screen the filament from direct view of the shopper looking into the show window from any natural angle. This reflector should always be used with $2\frac{1}{4}$ " deep or Form "H" holder. No. 922 has advantages similar to No. 944.

Use:

These reflectors are designed for use in deep windows, in windows of the island type, or in windows with open back or mirrors where open reflectors would cause reflected glare.

Spacing:

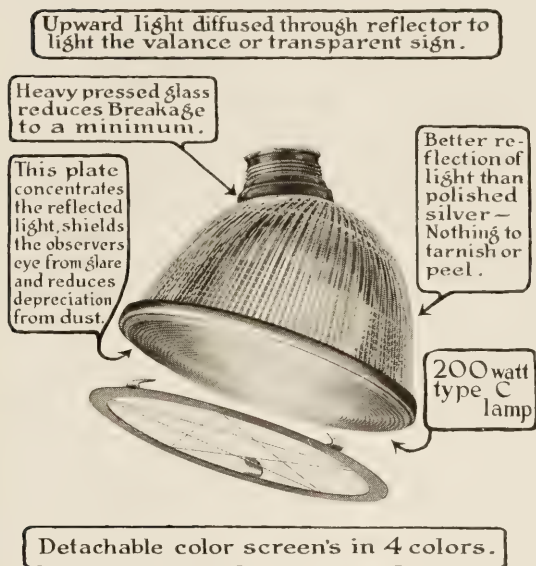
Reflectors No. 944 and No. 922 should be used on not less than 12" centers, mounted on the ceiling or transom bar of the window, with center of socket not less than 6" from the inside of plate-glass. Good practice recommends the use of units of this size on spacings closely approaching this 12" minim

SCHEDULE "R"

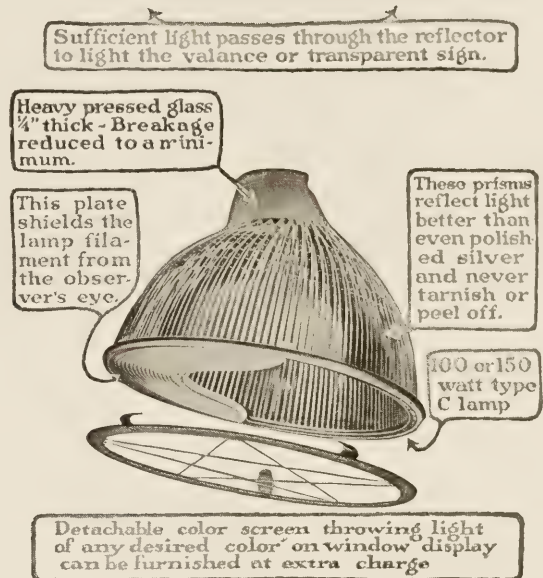
Holo. No.	List Price Each	Standard Quantity	Approx. Shipping Weight Lbs. Per Std. Pkg.	DIMENSIONS IN INCHES			Correct Lamps Watts
				Diameter	Height	Holder	
922	\$4.50	10	75	$9\frac{1}{2}$	$7\frac{1}{2}$	$2\frac{1}{4}$ -H	100-150
944	7.00	8	75	10	$9\frac{1}{4}$	$2\frac{1}{4}$ -O	200*

*100-150 watt use Benjamin Socket Extension.

HOLOPHANE REFLECTORS FOR SHOW WINDOW LIGHTING



Holophane No. 944.

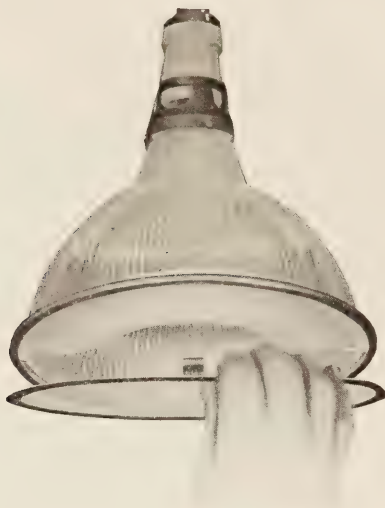


Holophane No. 922

HOLOPHANE WINDOW REFLECTORS are best because—

1. They deliver MORE light on the display.
2. They light the transparent sign uniformly.
3. Nothing to tarnish or peel off.
4. NO PERMANENT DEPRECIATION.
5. The lamp is not seen from the street or the inside of the store.
6. Does not change the color of the light.
7. Color effect can be obtained by using color filters.
8. Heavy pressed glass reduces breakage to a minimum.
9. They cost less.
10. Individual carton packed.

COLOR FILTERS FOR HOLOPHANE WINDOW REFLECTORS



Method of Attaching the Holophane
Color Filter



Holophane Color Filter

Description:

Holophane color filter sets are made in three sizes; No. 922-B set for use with No. 922 reflector; No. 944-B for use with No. 944 reflector; No. 983-B set for use with No. 983 and No. 963 reflectors.

The complete color filter set consists of one metal mounting frame to attach to reflector and four colored filters, one red, one green, one blue and one amber. Each of these color filters are mounted in a metal ring held in position and protected by wire supports so arranged as to permit expansion and contraction of the gelatin without breaking. In ordering spare renewal parts, No. 922-B, No. 944-B and No. 983-B designate complete color sets described above. No. 922-H, No. 944-H and No. 983-H designate mounting frames only. No. 922-C, No. 944-C and No. 983-C followed by name of the color wanted indicates the color filter only in its ring.

SCHEDULE "P"

Holo. No.	List Price Each	Standard Quantity	Size
922-B	\$3.75	10	To fit No. 922 Reflector
922-H	.75	20	To fit No. 922 Reflector
922-C	.75	20	To fit No. 922-H Frame
944-B	3.75	10	To fit No. 944 Reflector
944-H	.75	20	To fit No. 944 Reflector
944-C	.75	20	To fit No. 944-H Frame
983-B	3.75	10	To fit Nos. 983 and 963 Reflectors
983-H	.75	20	To fit Nos. 983 and 963 Reflectors
983-C	.75	20	To fit No. 983-H Frame

Human emotion reacts to color stimulation. A few of the best recognized reactions or associations are as follows:

BLACK—death, sombreness.	WHITE—peace, purity, cleanliness.
RED—passion, danger, tragedy, fire.	PINK—health, daintiness.
YELLOW—comfort, cheerfulness, security.	GREEN—coolness, supernaturalness.
BLUE—power, depression, coldness, moonlight.	PURPLE—richness, splendor, luxury, royal color.

Colored lighting can also be very appropriately used at the time of national and other holidays.

HOLOPHANE WINDOW LIGHTING



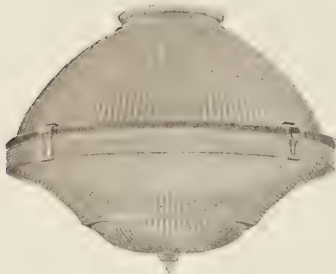
Ideal show window lighting with Holophane window reflectors in a typical shoe store.



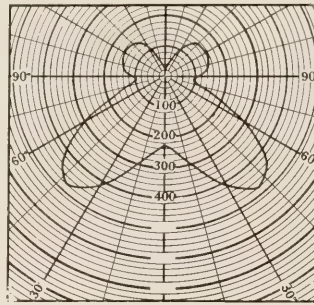
Ideal show window lighting with Holophane window reflectors in a typical department store.

The above pictures are unretouched photographs taken under their own illumination only.

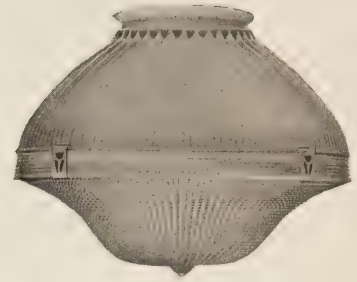
HOLOPHANE R-r ENCLOSING UNITS—REFLECTOR-REFRACTOR



Nos. 2110, 2120
2130 and 2140



Characteristic distribution curve of
Reflector-Refractor.



No. 2170 and 2180

Description:

The Reflector-Refractor (R-r) is made with accurately formed prisms of the Stiletto type on the upper part and refracting and diffusing prisms on the lower. The entire inside surface is Velvet Finished and produces a high degree of diffusion. The lower opening is closed by inserting a removable glass diffusing cap, which permits quick lamp renewals, without danger of breakage. The 2170 and 2180 are furnished as one piece and do not have this feature.

Use:

These enclosing units are designed for use in schools, public buildings, stores and offices. Nos. 2110 and 2120 are used extensively in industrial lighting as well. Each unit consists of an upper reflector and a lower refractor (diffusing). The R-r has the efficiency of the best open reflectors, and in addition all the other advantages of enclosing units, such as low brightness and protection from dirt accumulation. For complete fixtures see Page 21.

Spacing:

Not to exceed twice the mounting height.

Utilization Factor:

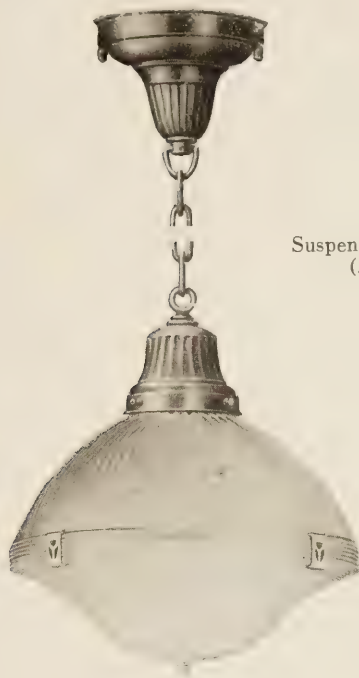
See Engineering Data, Page 13.

SCHEDULE "R"

Holo. No.	List Price Each	Standard Quantity	Approx. Shipping Weight Lbs. Per Std. Qt.	DIMENSIONS IN INCHES			Correct Lamps Watts
				Diameter	Height	Holder	
2110	\$3.00	12	35	7 $\frac{1}{2}$	6 $\frac{1}{8}$	2 $\frac{1}{4}$ -O	75
2120	4.50	8	48	9 $\frac{3}{4}$	7 $\frac{3}{4}$	3 $\frac{1}{4}$ -O	100-150
2130	10.50	4	48	11 $\frac{7}{8}$	9 $\frac{3}{8}$	4	200
2140-4"	15.00	3	54	14	10 $\frac{7}{8}$	4	300-500
2140-6"	15.00	3	54	14	10 $\frac{1}{2}$	6	300-500
2170	4.50	8	47	9 $\frac{7}{8}$	7 $\frac{5}{8}$	4	100-150
2180	10.50	4	48	12	9 $\frac{1}{2}$	5	200

Regularly furnished Velvet Finish.

HOLOPHANE R-r ENCLOSING UNITS—COMPLETE LUMINAIRES



Suspension Type
(S)



Ceiling Type
(C)

Description:

These fixtures are made of heavy gauge brass with E. S. Bronze finish as standard. They are equipped with canopy strap for mounting. Shipped including porcelain socket with quick wiring arrangement.

The decoration on these fixtures in both ceiling and suspension type consists of an embossing to harmonize with the design of the glassware. This decoration is sufficiently simple and dignified to be used on commercial work and sufficiently ornamental to be used in those installations where some degree of fixture decoration is desirable.

Use and Spacing: See Page 20.

Utilization Factors: See Engineering Data, Page 13.

SCHEDULE "R"

Holo. No.	List Price Each	Standard Quantity	Approx. Shipping Weight Lbs. Per Std. Qt.	DIMENSIONS IN INCHES		Correct Lamps Watts
				Diameter	Height	
S-2110 }	\$7.80	12	57	7 $\frac{1}{2}$	30	75
C-2110 }	5.80	12	53	7 $\frac{1}{2}$	10 $\frac{1}{2}$	75
S-2120 }	9.50	8	64	9 $\frac{3}{4}$	31	100-150
C-2120 }	7.50	8	60	9 $\frac{3}{4}$	11 $\frac{5}{8}$	100-150
S-2130 }	16.00	4	54	11 $\frac{7}{8}$	32 $\frac{7}{8}$	200
C-2130 }	14.00	4	48	11 $\frac{7}{8}$	13 $\frac{1}{4}$	200
S-2140-4"	22.00	3	61	14	34 $\frac{1}{8}$	300-500
S-2140-6"	22.00	3	61	14	34 $\frac{1}{2}$	300-500
C-2140-4"	20.00	3	60	14	14 $\frac{7}{8}$	300-500
C-2140-6"	20.00	3	60	14	15 $\frac{1}{4}$	300-500
S-2170 }	10.00	8	55	9 $\frac{7}{8}$	30 $\frac{7}{8}$	100-150
C-2170 }	8.00	8	53	9 $\frac{7}{8}$	11 $\frac{1}{2}$	100-150
S-2180 }	16.50	4	55	12	33	200
C-2180 }	14.50	4	54	12	13 $\frac{3}{8}$	200

S indicates Suspension type.

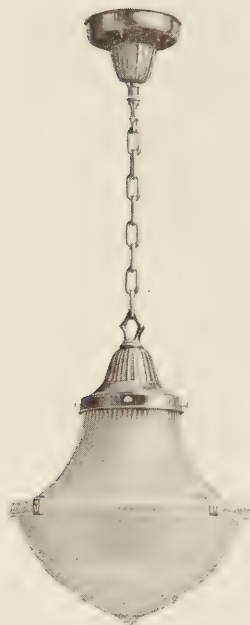
C indicates Ceiling type.

Quotation on special fixture finish furnished on request.

Extra chain 40 cents per foot list.

NOTE: These numbers include glassware. When ordering fixtures only specify by Cat. No. "less glassware."

HOLOPHANE FILTERLITE (INDIRECT) LUMINAIRE



†The Standard Holophane Filterlite, Suspension Type
F-100-200-300



†The Standard Holophane Filterlite, Ceiling Type
CF-100-200-300



‡The Holophane Filterlite with one of the ornamental fixtures designed and manufactured for Holophane exclusively by famous workers in metal.

Description:

The Filterlite is the latest and most efficient enclosing unit of the indirect lighting type. It is made two-piece, fastened together with spring steel clips and is shipped assembled. In design it represents a new departure. All the prismatic surfaces are on the inside and all outside surfaces are entirely smooth. Therefore, depreciation due to dirt accumulation is reduced to an absolute minimum. (See page 9, item 16.)

The upper part of the unit slopes sharply which again helps to make this unit dust resisting. A portion of the lower member has a white glass insert inside which acts as a diffuse reflector and reduces the brightness of the lighted unit.

Refracting prisms on the upper part of the lower member also redirect the light upward. The upper member has diffusing prisms to insure uniform illumination over a wide area on the ceiling. 69% of the light is directed upwards and 31% downwards.

The fixtures are of special design to harmonize with the pattern of the glass and are made of heavy gauge drawn brass. These fixtures are equipped with porcelain sockets. A $\frac{3}{8}$ " hickey is furnished on suspension type, permitting installation on outlet box with fixture stud. Canopy strap construction on ceiling type.

The F-100 has a 4" fitter, thus permitting use of 100 or 150 watt Mazda lamp maximum. The F-200 and F-300 have 5 $\frac{5}{8}$ " fitter, thus permitting the use of 200 or 300 watt lamps maximum. This prevents using oversized lamps to the detriment of the installation.

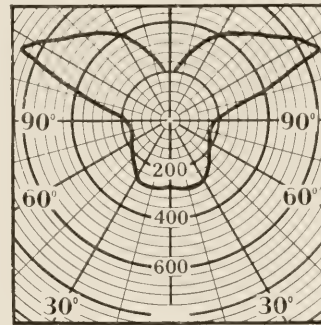
†For prices see page 23.

‡Price upon request.

HOLOPHANE FILTERLITE (INDIRECT) LUMINAIRE



The above diagrams show the proper lamp positions in the Holophane Filterlite.



Characteristic distribution curve of the Holophane Filterlite

Spacing:

The spread of the light on the ceiling from the Filterlite is uniform without sharp light cut off. For this reason the spacing of units is governed by the amount of light required for the work. In most instances from 1 to 3 watts per square foot will be required. Good practice limits the spacing of units to 15 feet on centers or less.

The ceiling type Filterlite is strongly recommended for all ordinary height rooms (under 13 feet).

Use:

The Holophane Filterlite will be reserved for high-class installations, preferably those where the luminaire is specified by the architect or engineer.

Utilization Factor:

See Engineering Data, Page 13.

SCHEDULE "S"

Holo. No.	List Price Each	Standard Quantity	Approx. Shipping Weight Lbs. Each	DIMENSIONS IN INCHES		Correct Lamps Watts
				Diameter	Overall Length	
Filterlite F-100	\$14.00	1	15	12	37	100-150
Filterlite CF-100	12.50	1	15	12	17 $\frac{5}{8}$	100-150
Filterlite F-200	19.00	1	23	14	40	200
Filterlite CF-200	18.00	1	23	14	20 $\frac{1}{8}$	200
Filterlite F-300	20.00	1	23	14	40	300
Filterlite CF-300	19.00	1	23	14	20 $\frac{1}{8}$	300
7322†	9.00	1	13	12	10 $\frac{1}{2}$	100-150
7344*	13.00	1	20	14	12 $\frac{1}{2}$	200-300

†Glass only for 100-150 watt size.

*Glass only for 200 and 300 size. Extra chain at 40 cents per foot list.

Wire included. Canopy with knockout for pull chain switch.

F indicates suspension type.

CF indicates ceiling type.

Standard finish of fixture is Statuary Bronze, but Dull Brass will be furnished at same price upon request, subject to slightly delayed shipment.



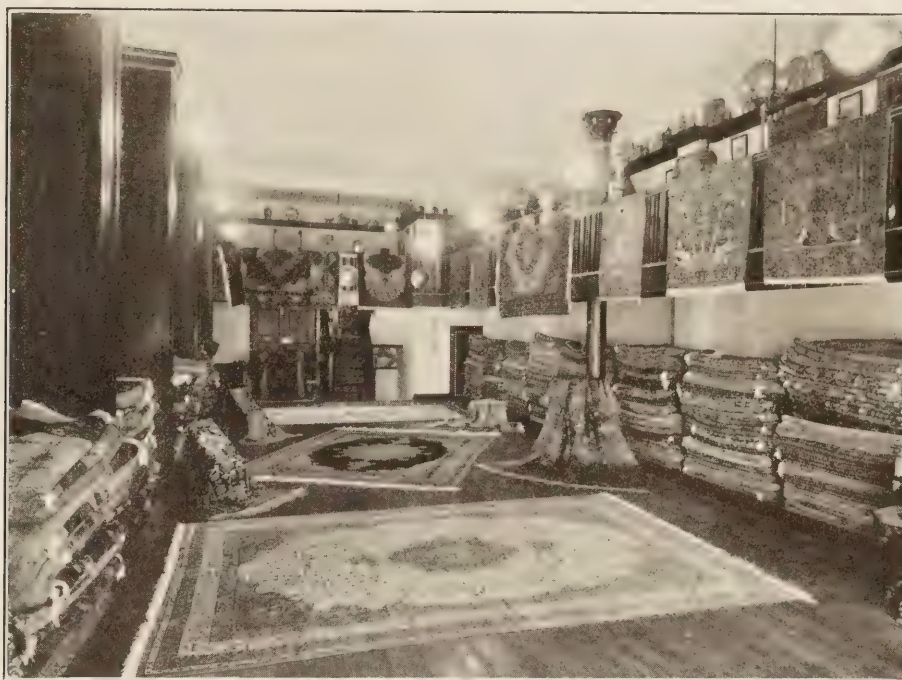
Ideal Reflector-Refractor illumination in a typical drug store.



Ideal Reflector-Refractor illumination in a typical auditorium

The above pictures are unretouched photographs taken under their own illumination only.

HOLOPHANE FILTERLITE (INDIRECT) LUMINAIRE



Ideal Filterlite illumination in a rug department.



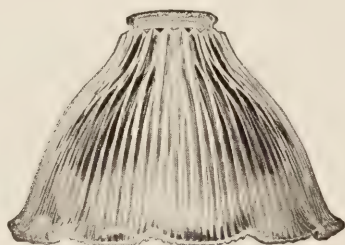
Ideal Filterlite illumination in the drafting room of the United Elec. Lt. & Pwr. Co., N. Y.

The above pictures are unretouched photographs taken under their own illumination only.

HOLOPHANE XTRA-FICIENCY REFLECTORS FOR MAZDA B LAMPS



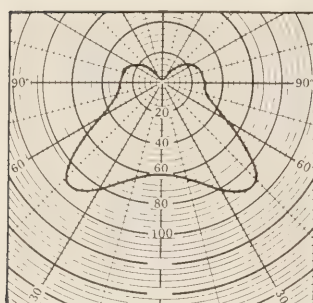
Extensive Type
XE



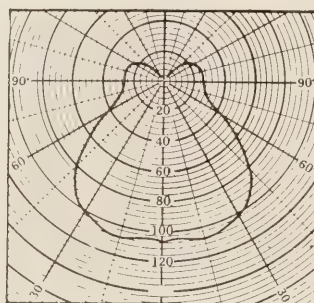
Intensive Type
XI



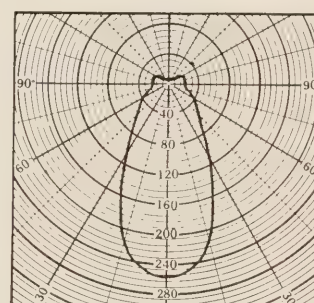
Focusing Type
XF



Characteristic distribution curve of
XE Type



Characteristic distribution curve of
XI Type



Characteristic distribution curve of
XF Type

Description:

Holophane Xtra-Ficiency reflectors are designed for use with Mazda B lamps. These reflectors have been on the market for years and are universally used and known.

Use:

These reflectors should be used where a low intensity of illumination is required, such as in storage spaces, warehouses, locker rooms, stairways, etc.

Spacing:

The ratio of the spacing to the mounting height above the work should not exceed 2 for XE Type, $1\frac{1}{4}$ for XI Type and $\frac{3}{4}$ for XF Type.

Utilization Factor:

See Engineering Data, Page 12.

SCHEDULE "R"

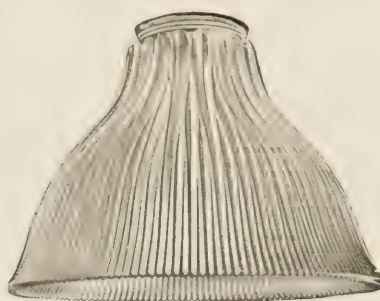
Holo. No.	List Price Each	Standard Quantity	Approx. Shipping Weight Lbs. Per Std. Qt.	DIMENSIONS IN INCHES			Correct Lamps Watts
				Diameter	Height	Holder	
XE-25	\$0.90	20	35	$6\frac{1}{8}$	$4\frac{1}{8}$	$2\frac{1}{4}$ -O	25
XE-40	1.05	10	20	$6\frac{7}{8}$	$4\frac{3}{4}$	$2\frac{1}{4}$ -O	40
XE-60	1.15	10	25	$7\frac{5}{8}$	5	$2\frac{1}{4}$ -O	60
XI-25	.90	20	35	$6\frac{3}{4}$	$4\frac{1}{8}$	$2\frac{1}{4}$ -O	25
XI-40	1.05	10	20	$7\frac{3}{8}$	$4\frac{5}{8}$	$2\frac{1}{4}$ -O	40
XI-60	1.15	10	25	$7\frac{3}{4}$	5	$2\frac{1}{4}$ -O	60
XF-25	.90	20	35	7	4	$2\frac{1}{4}$ -O	25
XF-40	1.05	10	20	$7\frac{3}{4}$	$4\frac{3}{8}$	$2\frac{1}{4}$ -O	40
XF-60	1.15	10	25	$8\frac{1}{4}$	$4\frac{3}{4}$	$2\frac{1}{4}$ -O	60

Regularly furnished clear. For Velvet Finish add 10% to the list price.

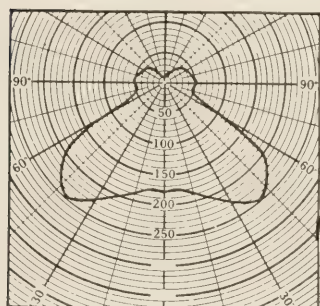
HOLOPHANE SUPER-FICIENCY REFLECTORS FOR MAZDA C LAMPS



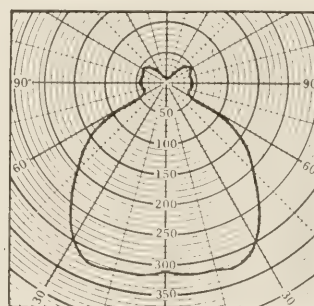
CSE Type
Super-Ficiency Extensive



CSI Type
Super-Ficiency Intensive



Characteristic distribution curve of
CSE Type Reflector



Characteristic distribution curve of
CSI Type Reflector

Description:

Holophane Super-Ficiency Reflectors are designed to give maximum efficiency with Mazda C lamps, wherever open reflectors can be used.

Use:

Holophane Super-Ficiency Reflectors are used extensively in the industrial plants, especially in the textile field, or wherever high efficiency is required.

Spacing:

CSE Type—Spacing should not exceed twice the mounting height. CSI Type—Spacing should not exceed $1\frac{1}{2}$ times the mounting height.

Utilization Factor:

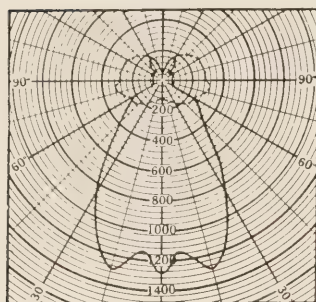
See Engineering Data, Page 12.

SCHEDULE "R"

Holo. No.	List Price Each	Standard Quantity	Approx. Shipping Weight Lbs. Per Std. Qt.	DIMENSIONS IN INCHES			Correct Lamps Watts
				Diameter	Height	Holder	
CSE- 75	\$1.40	10	35	$7\frac{1}{2}$	$5\frac{7}{8}$	$2\frac{1}{4}$ -O	75
CSE-100	1.75	10	40	$8\frac{1}{8}$	6	$2\frac{1}{4}$ -H	100-150
CSE-200	3.40	10	65	$9\frac{3}{4}$	$7\frac{3}{8}$	$3\frac{1}{4}$ -A	200
CSI - 75	1.40	10	35	8	$5\frac{7}{8}$	$2\frac{1}{4}$ -O	75
CSI -100	1.75	10	40	$8\frac{5}{8}$	$6\frac{1}{8}$	$2\frac{1}{4}$ -H	100-150
CSI -200	3.40	10	65	$10\frac{1}{8}$	$7\frac{3}{8}$	$3\frac{1}{4}$ -A	200

Regularly furnished in Velvet Finish. Also made in both types for 300, 400 and 500 watt lamps. Write for prices. It is imperative that proper holders be used with these reflectors.

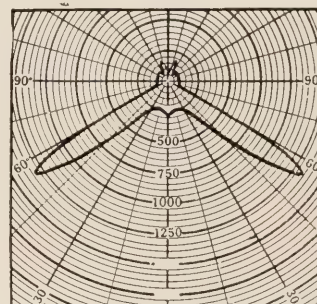
HOLOPHANE MILL TYPE UNITS FOR INDUSTRIAL PLANTS



Characteristic distribution curve of
Nos. 621, 651 and 661



Nos. 621, 651 and 661 Intensive Type
Nos. 622 and 652 Extensive Type



Characteristic distribution curve of
Nos. 622 and 652

Description

These Holophane Mill Type units for industrial plants are made with a special, rugged reflector, supported and protected by a steel tripod which grips the reflector from below on the ice tong principle, so that the reflector can be easily removed for cleaning without removing the lamp. The tripod is equipped with a sliding grip sleeve, secured by two set screws, so that the reflector can be set at the proper focus for several sizes of lamps according to markings provided on the stem. This construction provides extreme flexibility. Standard finish is olive drab enamel.

Use:

The 621 and 651 are used for intensive general lighting and for localized group lighting. The 622 and 652 are used for general lighting where high illumination on a vertical surface is required. The 661 is used where the units must be mounted at extreme heights as over craneways and in foundries.

Spacing: 621-651-661, not to exceed the mounting height above work. 622-652, not to exceed twice the mounting height above the work.

Utilization Factor: See Engineering Data, Page 13.

SCHEDULE "T"

Holo. No.	List Price Each	Standard Quantity	Approx. Shipping Weight Lbs. Per Std. Qt.	DIMENSIONS IN INCHES		Correct Lamps Watts
				Diameter	Overall Length	
621	\$7.50	5	120	11 $\frac{7}{8}$	20 $\frac{1}{4}$	{ 75-100 150-200 200-300 400-500
*6521	5.00	5	85	11 $\frac{3}{8}$	5 $\frac{7}{8}$	
† 651	9.50	5	124	12 $\frac{7}{8}$	22	
*6551	6.00	5	90	12 $\frac{3}{8}$	5 $\frac{3}{4}$	
† 661	20.00	5	128	15 $\frac{1}{2}$	28	{ 500-750 1000
*6561	12.00	5	105	15	6 $\frac{7}{8}$	
622	7.50	5	100	11 $\frac{7}{8}$	20 $\frac{1}{4}$	{ 75-100 150-200 200-300 400-500
*6522	5.00	5	85	11 $\frac{3}{8}$	6 $\frac{7}{8}$	
652	9.50	5	112	12 $\frac{7}{8}$	22	
*6552	6.00	5	90	12 $\frac{3}{8}$	7 $\frac{3}{8}$	

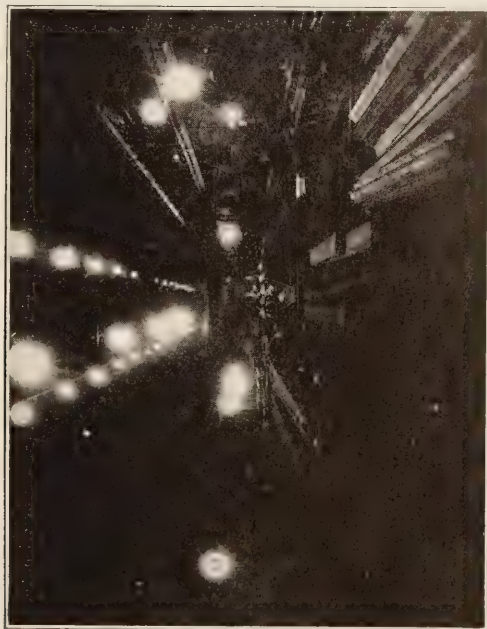
*Nos. 6521, 6551 and 6561 are glass only for Nos. 621, 651 and 661 respectively.

*Nos. 6522 and 6552 are glass only for Nos. 622 and 652 respectively.

These fixtures regularly furnished with 7-inch stem; special lengths furnished on request with extra charge.

†Aluminum covers spun on 621, 651, and 661 will be furnished at an extra charge of \$3.50 list.

LIGHTING FROM HIGH MOUNTING HEIGHTS IN A FOUNDRY

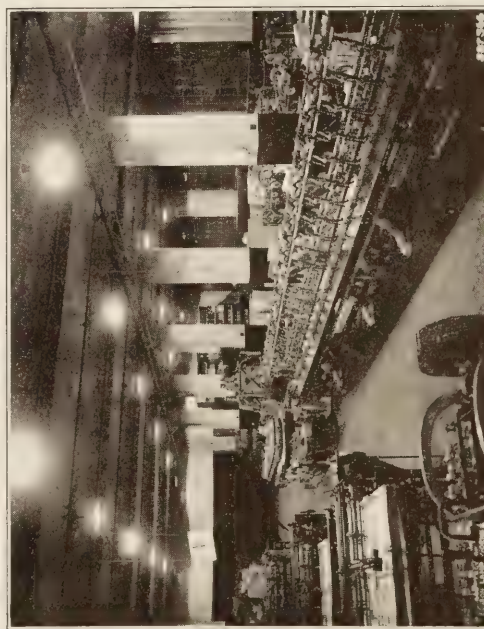


BEFORE
With metal reflectors.

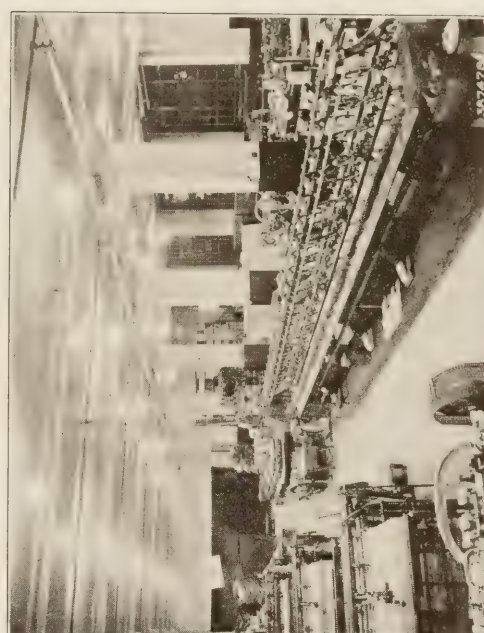


AFTER
With Holophane Reflectors No. 661.

LOCALIZED GROUP LIGHTING IN A PRINTING ESTABLISHMENT



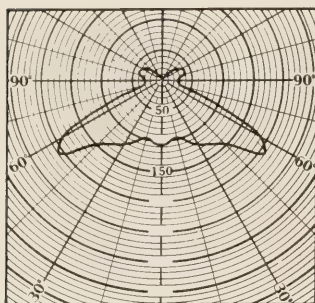
BEFORE
With metal reflectors.



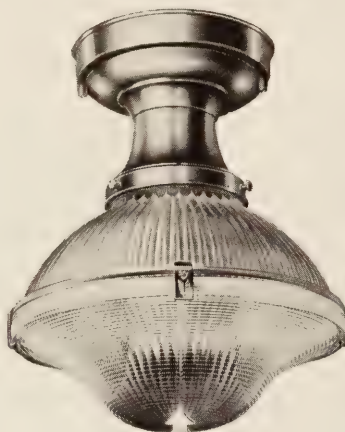
AFTER
With Holophane reflectors No. 621.

The above pictures are untouched photographs taken under their own illumination only.

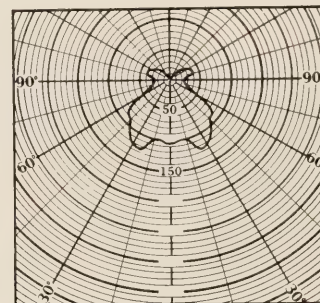
HOLOPHANE ASYMMETRIC UNIT



Characteristic distribution curve of No. C-2172 in a plane along the corridor



No. C-2172



Characteristic distribution curve of No. C-2172 in a plane across the corridor

For aisles, corridors and similar locations where the length of the area greatly exceeds the width.

Description:

The No. C-2172 Unit is similar in shape and general construction to the enclosing Reflector-Refractor No. C-2170. The prism construction on the lower surface is designed to give an asymmetric light distribution required for corridor lighting. An arrow is moulded as an integral part of the lower surface of the unit, showing the proper orientation of the reflector. Chain hangers should not be used as it is essential that the unit can not turn out of correct position.

Use:

In all locations such as corridors, aisles, passageways and similar places having extreme length in relation to the width, it has been necessary in the past to use lighting units giving a symmetrical distribution because there was no unit available giving the proper type of asymmetric distribution. To meet this requirement, the asymmetric unit No. C-2172 has been designed, giving an extensive distribution of light along the long dimension and an intensive distribution of light across the short dimension of the interior. With this unit, uniform illumination can be obtained in such locations.

This asymmetric unit is an admirable example of how Holophane lighting units have their light distributions moulded to fit particular types of interiors so as to give the greatest possible utilization efficiency.

Spacing:

The practical advantage of the asymmetric No. C-2172 over symmetrical units for the illumination of aisles, corridors and similar spaces is that uniform illumination can be obtained when the units are spaced on centers $2\frac{1}{2}$ times the mounting height. This is to be contrasted with the alternate areas of high and low intensity obtained from symmetrical units spaced on centers as close as 1.5 times the mounting height.

SCHEDULE "R"

Holo. No.	List Price Each	Standard Quantity	Approx. Shipping Weight Lbs. Per Std. Pkg.	DIMENSIONS IN INCHES			Correct Lamps Watts
				Diameter	Height	Holder	
*†C-2172	\$8.00	8	53	$9\frac{7}{8}$	$11\frac{3}{4}$	4	100-150
*† 2172	4.50	8	47	$9\frac{7}{8}$	$7\frac{5}{8}$	4	100-150

*75 watt can be used with Benjamin Socket Extension.

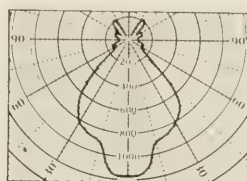
†Complete ceiling type luminaire.

†Glassware only.

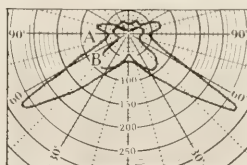
HOLOPHANE HIGH EFFICIENCY VAPOR-PROOF GLOBES



No. 2323



Characteristic distribution curve
of No. 02338



Characteristic distribution curves
of No. 2328 (A) and No. 2208 (B)



No. 02338

Description:

In the past, all vapor-proof lighting fittings have been equipped with clear glass globes, and in order to obtain effective lighting, it has been necessary to place a reflector over the glass globe or else use an abnormal wattage per square foot of floor area. Holophane Vapor-proof globes are combined vapor-proof globes and reflectors, fulfilling perfectly the functions of each.

Reflecting prisms accurately formed on the upper portion redirect the light from the lamp in downward directions and the refracting and diffusing prisms on the lower surface distribute the light in useful directions in the desired proportions, so that the resulting illumination on the work will be uniform. These reflector globes should be used on vapor and gas proof condulets or fittings of Holophane, Crouse-Hinds, Benjamin, VV., Russell & Stoll and other makes.

Use:

These reflector globes should be used in Acid Plants, Paint Shops, Electroplating Shops, Pickling Departments, Oil Refineries, Powder Plants, Grain Elevators, Moving Picture Film Rooms, Shower Baths and similar places where corrosive or explosive fumes and moisture prohibit the use of lights other than those of the vapor-proof type.

Spacing:

For uniform illumination, the spacing should not exceed 2.5 times the mounting height for No. 2328 and No. 2208, and 1 times the mounting height for No. 02338.

Utilization Factor: See Engineering Data, Page 13.

SCHEDULE "I"

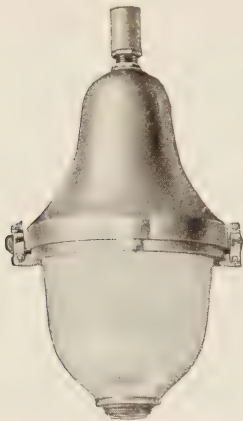
Holo. No.	List Price Each	Standard Quantity	Approx. Shipping Weight Lbs. Per Std. Qt.	DIMENSIONS IN INCHES			Correct Lamps Watts
				Diameter	Height	Holder	
*2208	\$2.00	20	68	6 $\frac{3}{8}$	6 $\frac{3}{4}$	V.V. No.5001 Crouse-Hinds† V. H. fittings	40-50-60
*2328	3.00	15	74	7 $\frac{1}{4}$	8 $\frac{1}{4}$		75-
02328	9.50	6	80	7 $\frac{1}{4}$	10 $\frac{1}{4}$		100-150
†*2338	6.00	6	74	10 $\frac{3}{8}$	8 $\frac{3}{8}$	Special Holophane	75-
†02338	14.00	6	82	10 $\frac{3}{8}$	13		100-150 200 200

†Also Benjamin No. 1515, V. V. No. 5002, and Veco No. OVP-116.

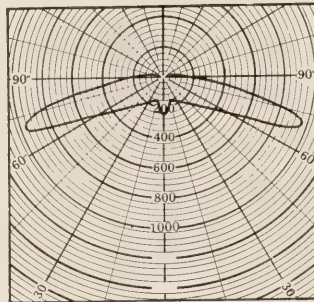
*Glass only.

†Also furnished with aluminum cover spun over reflector at \$3.50 list additional.

HOLOPHANE HEAVY DUTY REFRACTOR UNITS FOR YARD LIGHTING



Nos. 04338-C, 04376-C



Characteristic distribution curve of
Nos. 04338-C and 04433-C



No. 04433-C

Description:

Holophane Refractor Units Nos. 04338-C, 04376-C and 04433-C are complete with No. 4338, 4376 or 4433 refractors respectively, hot galvanized iron dust tight refractor holder, easily adjustable mogul socket and $\frac{3}{4}$ -inch coupling or eye bolt. All of these refractors are completely closed. For complete information on these Holophane refractors write for Bulletin 351.

Use:

The Nos. 04338-C and 04433-C have been designed especially for the illumination of large open spaces such as industrial yards, coal storage yards, etc. The No. 04376 gives a two-way light distribution and has been designed for the illumination of industrial road ways, railway yards, dams, etc.

Spacing:

In general, the angle of maximum candle-power at 75 or 80 degrees is used for outdoor illumination, with a spacing of units 8 to 12 times the mounting height. The 65 to 70 degree angles of maximum candle-power are for indoor use with spacing 4 to 6 times the mounting height.

Utilization Factor:

Write Holophane Engineering Department for special information.

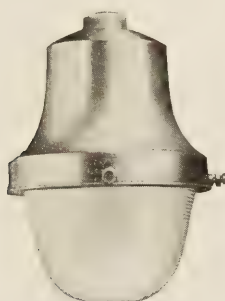
SCHEDULE "S"

Holo. No.	List Price Each	Standard Quantity	Approx. Shipping Weight Lbs. Per Std. Qt.	DIMENSIONS IN INCHES		Correct Lamps Watts
				Diameter	Height	
04338-C	\$24.00	8	294	11	18 $\frac{1}{2}$	200-300
*04376-C	25.00	8	294	11	18 $\frac{1}{2}$	200-300
04433-C	34.00	8	300	14	22 $\frac{3}{4}$	500
†4338	7.50	8	90	8 $\frac{1}{2}$	7 $\frac{5}{8}$	200-300
†*4376	8.50	8	90	8 $\frac{1}{2}$	7 $\frac{5}{8}$	200-300
†4433	18.00	3	150	11 $\frac{3}{4}$	9 $\frac{3}{4}$	500

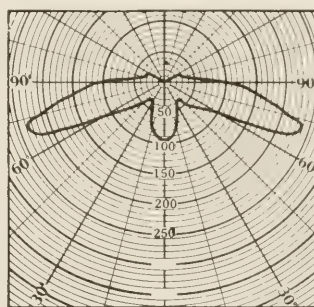
*Two Way Refractor.

†Glass only.

HOLOPHANE INDUSTRIAL REFRACTOR UNIT



No. 830



Characteristic distribution curve
of No. 830

Description:

Holophane No. 830 and No. 832 industrial refractors are constructed on the well known two-piece refractor principle with smooth exposed surfaces inside and out. The hood is made of heavy gauge spun copper with medium base porcelain socket arranged for $\frac{1}{2}$ inch pipe suspension.

Use:

Industrial "night lighting" or lighting after working hours is needed to enable the watchman to detect any irregularity. For his O. K. report to be of value, the watchman must be able to see into all parts of the room. It follows therefore that uniform illumination is absolutely necessary even though it be of low intensity (approximately 0.25 foot candles). Alternate spaces of light and darkness as obtained with ordinary systems are only sufficient to enable the watchman to walk without danger of falling, but will not enable him to detect irregularities.

No. 830 and No. 832 are also especially suitable for use over exits on the yard side to illuminate the yard space adjacent to the door, when there is no provision made for a regular system of yard illumination.

Special Use:

These units are especially appropriate for the lighting of gasoline and oil filling stations. Write to Holophane Engineering Department for spacing and mounting data.

Spacing:

For uniform illumination the units should be spaced on centers 6 times the mounting height. For ordinary ceiling heights (12 feet), the units can be spaced on 60 foot centers.

SCHEDULE "S"

Holo. No.	List Price Each	Standard Quantity	Approx. Shipping Weight Lbs. Per Std. Qt.	DIMENSIONS IN INCHES		Correct Lamps Watts
				Diameter	Height	
830	\$8.50	20	126	7	9 $\frac{1}{4}$	75-100-150
*4337	3.50	20	90	6 $\frac{1}{2}$	4 $\frac{7}{8}$	75-100-150
832	12.00	10	87	8 $\frac{1}{2}$	11 $\frac{3}{4}$	200
*4334	5.00	10	65	7 $\frac{1}{2}$	6 $\frac{1}{8}$	200

*Glass only.



Ideal illumination of a gas filling station.

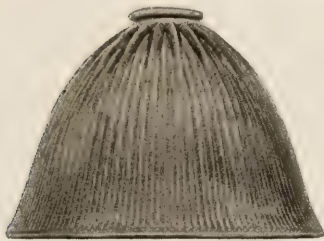
The above picture is taken by daylight to show the application of Holophane No. 830 units to gas filling stations.



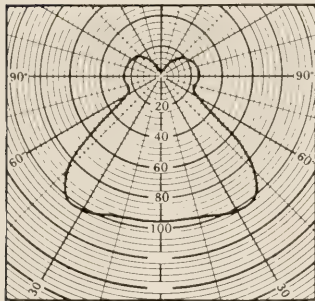
Ideal yard illumination.

The above picture is an unretouched photograph taken under its own illumination only.

HOLOPHANE REFLECTORS FOR RAILROAD LIGHTING



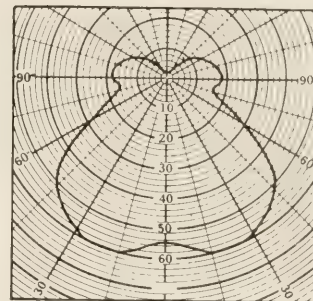
Nos. 18221, 18226 and 18246



Distribution curve of
No. 18226



Nos. 18102, 18134 and 18136



Distribution curve of
No. 18134

Description:

These reflectors have been designed to meet the special requirements of service specified by Railroad Engineers and to give the proper lamp filament positions when used with fixtures and lamps of the railway type.

Use:

Nos. 18226 and 18246 should be used for center deck lighting and No. 18221 for half deck lighting. Nos. 18102, 18134 and 18136 have been designed for electric car lighting.

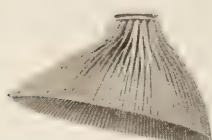
For special recommendations or engineering advice write to Holophane Engineering Dept., New York City.

SCHEDULE "R"

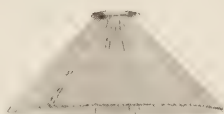
Holo. No.	List Price Each	Standard Quantity	Approx. Shipping Weight Lbs. Per Std. Pkg.	DIMENSIONS IN INCHES			Correct Lamps Watts
				Diameter	Height	Holder	
18102	\$1.50	20	75	8 $\frac{1}{4}$	5 $\frac{3}{4}$	2 $\frac{1}{4}$	94
18134	1.05	40	21	7	4 $\frac{1}{2}$	2 $\frac{1}{4}$	23-36
18136	1.15	30	70	7 $\frac{1}{8}$	5 $\frac{1}{8}$	2 $\frac{1}{4}$	56
18221	1.00	30	68	6 $\frac{1}{4}$	4 $\frac{1}{2}$	2 $\frac{1}{4}$	25
18226	2.60	20	91	8 $\frac{3}{4}$	6 $\frac{1}{2}$	2 $\frac{1}{4}$	50
18246	4.45	8	67	10 $\frac{3}{8}$	7	4 $\frac{1}{2}$	50

For Velvet Finish add 10% to above list prices.

HOLOPHANE SPECIAL SERVICE REFLECTORS



No. 981



No. 9210



No. 3137



No. 5718



No. 18105

Use:

No. 981 is recommended for cove lighting and window lighting when 60 watt Mazda B or 75 watt Mazda C lamps are used.

No. 9210 is recommended for lighting certain types of Jacquard Looms in silk mills and for many other places where intensive local lighting is necessary. Furnished also with paper or celluloid cover.

No. 5718 (U. S. Navy No. 2034-L) is designed for use with the Navy standard steam-tight fittings for use on shipboard for deck lighting.

No. 18105 and No. 3137 are designed for lighting the interior of auto buses.

SCHEDULE "R"

Holo. No.	List Price Each	Standard Quantity	Approx. Shipping Weight Lbs. Per Std. Pkg.	DIMENSIONS IN INCHES			Correct Lamps Watts
				Diameter	Height	Holder	
981	\$2.00	30	71	8 $\frac{5}{8}$	5	2 $\frac{1}{4}$ -O	60-75
3137	.60	190	85	2 $\frac{3}{4}$	2 $\frac{3}{4}$	2	21cp.Auto
5718	.60	40	85	4 $\frac{1}{2}$	5	NavyStd
9210	1.40	30	85	10	5	2 $\frac{1}{4}$ -O	60
9210-P*	2.00	30	85	10	5	2 $\frac{1}{4}$ -O	60
9210-C†	2.55	30	85	10	5	2 $\frac{1}{4}$ -O	60
18105	.70	95	78	4 $\frac{3}{4}$	2 $\frac{11}{16}$	2 $\frac{1}{4}$	21cp.Auto

*Paper cover included.

†Celluloid cover included.

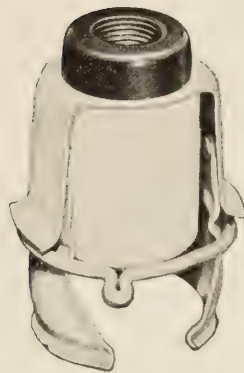
Reflectors for Automobile Service:

The Holophane Company manufactures a complete line of glassware for automobile service, including headlight lenses and glass for illuminating closed car interiors, buses, tail lights, parking lights, etc.

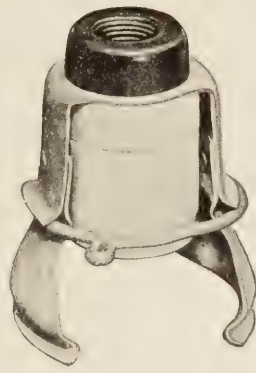
Special molds to conform to specification can be built and reserved for customers requiring private or exclusive patterns.

Estimates on such molds and glassware will be furnished on request.

HOLDERS FOR HOLOPHANE REFLECTORS



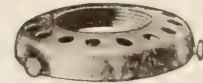
Holder HDH



Holder HDA



Form A Holder



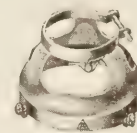
Form O Uno No. 502 and
Uno 506 Holder



Bryant No. 444



Form H Uno No. 504 Holder



Appleton No. 7319 Holder

It is imperative that proper holders be used with Holophane Reflectors.

Holo. No.	List Price Each	Standard Quantity	Schedule	Diam. in Inches	Position
HDH†	\$1.15	30	I	2 $\frac{1}{4}$	H
HDA†	1.25	30	I	3 $\frac{1}{4}$	A
UNO-502	.25	50	R	2 $\frac{1}{4}$	O
UNO-504	.35	50	R	2 $\frac{1}{4}$	H
UNO-506	.50	50	R	3 $\frac{1}{4}$	O
3 $\frac{1}{4}$ -A	.75	30	R	3 $\frac{1}{4}$	A
Appleton* No. 7319 }	.60	50	R	2 $\frac{1}{4}$	H
Bryant 444*	.60	50	R	2 $\frac{1}{4}$	H
Bryant 443	.60	50	R	2 $\frac{1}{4}$	O

*Appleton No. 7319 and Bryant No. 444 are 2 $\frac{1}{4}$ Form H holders for use on porcelain sockets.

†HDA and HDH price includes porcelain socket.

Use of HDH and HDA Holders:

These socket holders are of very rugged construction consisting of heavy porcelain mill type socket with $\frac{1}{2}$ inch thread for mounting on conduit. They can be bushed for drop cord service. The holder part is made of sherardized metal to resist corrosion and is designed to grip the reflector heel and to be locked into position by turning an elliptical ring. These are especially recommended for use with No. 922, 983, 963, CSE-100, and -200 and CSI-100 and -200 reflectors.

A Few Prominent Users of Holophane Include the Following:

SHOW WINDOWS

Famous & Barr Co., St. Louis, Mo.
Rogers Peet & Co. Stores, New York.
Gimbel Bros., New York and Milwaukee, Wis.
The Shepard Company, Providence, R. I.
The White House, San Francisco, Cal.
The Avedon Company, Fifth Ave., New York.
The Kraus Company, New Orleans, La.
Scruggs, Vandervoort & Barney, St. Louis, Mo.
Macullar Parker Co., Boston, Mass.
Nash Motor Car Co., Broadway, New York.
Hudson-Essex Motor Car Co., Broadway, New York.
Peerless Motor Car Co., Broadway, New York.
New York Edison Company, New York.
Hartford Electric Light Co., Hartford, Conn.
Brooklyn Edison Co., Brooklyn, New York.
Chickering Studios, New York.
Buffalo General Electric Co., Buffalo, N. Y.
F. L. Lazarus Company, Columbus, O.
Carey Stores, Grand Central Terminal, New York.
Paige Sales & Service Co., Detroit, Mich.
The Outlet Co., Providence, R. I.
The Boston Herald, Boston, Mass.
Huylers Candy Shops, Boston, Mass.
Woolworth 5 and 10c. Stores.
Albert Steiger Co., Springfield, Mass.
Nat Kaiser & Co., Atlanta, Ga.

STORES

Gotham Hosiery Store, New York, N. Y.
United Cigar Stores.
Liggetts Drug Stores.
Piggly Wiggly Stores.
National Drug Stores.
Mirror Candy Stores.
Schulte Cigar Stores.
Stetson Shoe Shops.
Regal Shoe Stores.
The Emporium, Paterson, N. J.
Buick Show Room, Atlanta, Ga.
Browning King Co., Milwaukee, Wis.
Liggett's Drug Store, Toronto, Canada.
Mullins Dept. Store, Wilmington, Del.
Fisher Furniture Co., Milwaukee, Wis.
Willys-Overland Co., Detroit, Mich.

OFFICES

Purina Mills, St. Louis, Mo.
Burrroughs Adding Machine Co., Detroit, Mich.
Victor Talking Machine Co., Camden, N. J.
Beacon Trust Company, Boston, Mass.
State Mutual Life Assurance Co., Worcester, Mass.
Land Title & Trust Bldg., Philadelphia, Pa.
N. Y. Life Insurance Co., New York, N. Y.
Cleveland Plain Dealer Bldg., Cleveland, O.
Prudential Life Insurance Co., Newark, N. J.
United Electric Lt. & Pr. Co., New York.
Narragansett Elec. Ltg. Co., Providence, R. I.
Insurance Co. of North America, Philadelphia, Pa.
Commercial Trust Bldg., Philadelphia, Pa.
Hartford Connecticut Trust Co., Hartford, Conn.
Illuminating Bldg., Cleveland, O.
Land Security Bldg., Cleveland, O.
Army & Navy Bldg., Washington, D. C.
Loose-Wiles Biscuit Co., Boston, Mass.
Hershey Chocolate Co., Hershey, Pa.
Milwaukee Paper Box Co., Milwaukee, Wis.

INDUSTRIAL

Merrimac Chemical Co., Charlestown, Mass.
International Motor (Mack Truck) Co., Plainfield, N. J.
Diamond State Fibre Co., Bridgeport, Pa.
Pa. R. R., Paoli Shops, Paoli, Pa.
Ford Motor Co., Dearborn, Mich. (Engineering Bldg. and Steel Mill).
Buick Motor Co., Flint, Mich. (Yards and Foundry).
Studebaker Motor Co., South Bend, Ind. (Foundry).
Chevrolet Motor Co., Tarrytown, N. Y.
Gillette Safety Razor Co., Boston.
Royal Vacuum Cleaner Co., Cleveland, Ohio.
Victor Talking Machine Co., Camden, N. J.
E. I. DuPont de Nemours & Co., (Dye, Powder and Acid Plants)
Fisher Body Co., Detroit, Mich. and Cleveland, O.
A. G. Spaulding & Bros., Chicopee, Mass.
Philadelphia & Reading Railroad, Camden, N. J., Terminal.
Hog Island Shipyards, Philadelphia, Pa.
Textile Dyeing Company of America, Paterson, N. J.
John A. Roebling Sons Company, Trenton, N. J.
Cahokia Station of Union Electric Light & Power Co., St. Louis (Turbine Room).
Arohnson Silk Mill, Coatesville, Penna.
Aluminum Company of America.
American Cotton Oil Company.
American Engineering Company, Philadelphia.
American Steel & Wire Company, New Haven.
Buick Motor Co., Flint, Mich.
Bush Terminal, Brooklyn, N. Y.
Durant Motor Company.
Fisk Rubber Company, Chicopee Falls, Mass.
Pennsylvania Railroad, Philadelphia Yards.
Submarine Boat Ship Yard, Newark, N. J.
Bethlehem Steel Corp.

SCHOOLS

Philadelphia Public Schools.
Milwaukee Public Schools.
Milwaukee School of Engineering.
New York City Public Schools.
Thompson Institute, Yonkers, N. Y.
Detroit Public Schools.
St. Benedict's College, Newark, N. J.
Marquette University.
North Dallas High School, Dallas, Texas.
Hartford High School, Hartford, Conn.
Shelton High School, Bristol, Conn.
English High School, Waterbury, Conn.
Continuation School, Milwaukee, Wisc.
Yale University, New Haven, Conn.
McGill University, Montreal, Canada.
University of Minnesota, Library Bldg.
Smith College, Northampton, Mass.
Grover Cleveland Junior High School, Zanesville, Ohio.
Theodore Roosevelt Junior High School, Zanesville, Ohio.

HOSPITALS

Wards Island Hospital, N. Y.
Westfield State Sanatorium, Westfield, Mass.
Newark Industrial Clinic, Newark, N. J.
U. S. War Ships Operating Room.
Vanderbilt University Hospital.
King's Park Hospital.

HOLOPHANE DATALOG

INDEX

Holophane No.	List Price Each	Sched.	Std. Quant.	Page	Holophane No.	List Price Each	Sched.	Std. Quant.	Page
XE-25.	\$0.90	R	20	26	C-2180	14.50	R	4	21
XI-25	.90	R	20	26	S-2180	16.50	R	4	21
XF-25.	.90	R	20	26	2208	2.00	I	20	31
XE-40.	1.05	R	10	26	2328	3.00	I	15	31
XI-40	1.05	R	10	26	02328.	9.50	I	6	31
XF-40	1.05	R	10	26	2338	6.00	I	6	31
XE-60	1.15	R	10	26	02338.	14.00	I	6	31
XI-60	1.15	R	10	26	3137	.60	R	190	36
XF-60	1.15	R	10	26	5718	.60	R	40	36
CSE-75	1.40	R	10	27	6521	5.00	I	5	28
CSI-75	1.40	R	10	27	6522	5.00	I	5	28
CSE-100	1.75	R	10	27	6551	6.00	I	5	28
CSI-100	1.75	R	10	27	6552	6.00	I	5	28
CSE-200	3.40	R	10	27	6561	12.00	I	5	28
CSI-200	3.40	R	10	27	7322	9.00	S	1	23
621.	7.50	I	5	28	7344	13.00	S	1	23
622.	7.50	I	5	28	9210	1.40	R	30	36
651.	9.50	I	5	28	9210 and Celluloid				
652.	9.50	I	5	28	cover	2.55	R	30	36
661.	20.00	I	5	28	9210 and Paper				
830.	8.50	S	20	33	cover	2.00	R	30	36
832.	12.00	S	10	33	04338-C	24.00	S	8	32
922.	4.50	R	10	16	04376-C	25.00	S	8	32
922-B	3.75	I	10	18	04433-C	34.00	S	8	32
922-H	.75	I	20	18	4334	5.00	S	10	33
922-C	.75	I	20	18	4337	3.50	S	20	33
944.	7.00	R	8	16	4338	7.50	S	8	32
944-B	3.75	I	10	18	4376	8.50	S	8	32
944-H	.75	I	20	18	4433	18.00	S	3	32
944-C	.75	I	20	18	18102.	1.50	R	20	35
963.	3.00	R	15	15	18105.	.70	R	95	36
981.	2.00	R	30	36	18134.	1.05	R	40	35
983.	3.00	R	12	15	18136.	1.15	R	30	35
983-B	3.75	I	10	18	18221.	1.00	R	30	35
983-H	.75	I	20	18	18226.	2.60	R	20	35
983-C	.75	I	20	18	18246.	4.45	R	8	35
2110	3.00	R	12	20	Filterlite F-100	14.00	S	1	23
C-2110	5.80	R	12	21	Filterlite CF-100	12.50	S	1	23
S-2110	7.80	R	12	21	Filterlite F-200	19.00	S	1	23
2120	4.50	R	8	20	Filterlite CF-200	18.00	S	1	23
C-2120	7.50	R	8	21	Filterlite F-300	20.00	S	1	23
S-2120.	9.50	R	8	21	Filterlite CF-300	19.00	S	1	23
2130	10.50	R	4	20					
C-2130	14.00	R	4	21	FITTINGS				
S-2130.	16.00	R	4	21	Filterlite Chain				
2140-4"	15.00	R	3	20	per ft.	.40	S	23
2140-6"	15.00	R	3	20	R. R. Fixture Chain				
C-2140.	20.00	R	3	21	per ft.	.40	R	21
C-2140-6"	20.00	R	3	21	Appleton No. 7319	.60	R	50	37
S-2140.	22.00	R	3	21	HDA.	1.25	I	30	37
S-2140-6"	22.00	R	3	21	HDH.	1.15	I	30	37
2170	4.50	R	8	20	Uno No. 502.	.25	R	50	37
C-2170	8.00	R	8	21	Uno No. 504	.35	R	50	37
S-2170	10.00	R	8	21	Uno No. 506.	.50	R	50	37
2172	4.50	R	8	30	3¼ Form A	.75	R	30	37
C-2172.	8.00	R	8	30	Bryant 443	.60	R	50	37
2180	10.50	R	4	20	Bryant 444	.60	R	50	37

HOLOPHANE DATALOG

Holophane Engineering Service:

The Holophane Engineering Department is composed of two separate branches—The Prismatic Glass Design Department and The Lighting Installation Design Department.

The function of the prismatic glass design department is to design reflecting and refracting equipment for special purposes and it is the function of the installation design department to specify the proper use of this equipment. In the design of a highly scientific product, such as Holophane, it is necessary to make certain assumptions as to its method of use and in order to get the maximum service from such equipment, its installation must conform to the instructions of the designer. It is for this reason that the Holophane Company maintains a competent engineering staff to co-operate with those who contemplate the use of Holophane equipment. This is a part of Holophane service and is gladly given in full faith in, and unalloyed devotion to, the philosophy—

"He Profits Most Who Serves Best"

Holophane Publications:

The following Special Booklets may be obtained from the Holophane Company:

- Bulletin No. 150 —The New Era in Street Lighting.
" " 250 —Scientific Street Lighting.
" " 343A—The Holophane Lightmeter.
" " 344 —Modern School Lighting.
" " 350 —Streets That Are Safe.
" " 356 —The Holophane Filterlite.
" " 357 —4-Way and 2-Way Refractors.
" " 375C—Holophane Datalog (Commercial Edition).
" " 384 —Color Lighting and Display Work.
" " 387 —Holophane Twilite Hospital Luminaire.
" " 394 —Industrial Lighting Book
" " 444 —Modern Retailing Success.

The following folders are also available:

- Form No. 346—Holophane Vapor-Proof Reflector Globes.
" " 348—Holophane Reflector-Refractors (R-r).
" " 349—Holophane Auto Lens No. 855 Size Chart and Price List.
" " 351—Holophane Yard Lighting Refractors.
" " 393—Holophane No. 944 Enclosed Window Reflector.
" " 399—Holophane Filterlite Units.
" " 400—Holophane No. 922 Window Reflector.
" " 401—Light for Industrial Efficiency.

For copies of these booklets or folders address:

HOLOPHANE GLASS CO. INC.

342 Madison Avenue,

New York, N. Y.

